



Inspired Cycle Engineering Ltd

STEP-BY-STEP ASSEMBLY INSTRUCTIONS and OWNERS MANUAL TRICE Q, S, T



1.0 Introduction.

Congratulations on being a new Trice owner. You have purchased the finest, most refined recumbent tricycle available today; we hope it brings you many years of enjoyment.

This manual has been written to help you set up and use your trike. Recumbent trikes may be a little different from the cycles you are familiar with, so please take a moment to read through this document. You will find the latest version of this manual in a download-able PDF format on our website.

Throughout the manual, we have included some Tips, which have been learned from over 20 years of experience building trikes. They are well worth taking special note of.

We hope you enjoy owning and riding your Trice as much as we like making these great machines.

Chris, Neil and the ICE team

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2.0 Assembling your TRICE

Assembly tools required:

3mm Hex Key
4mm Hex Key
5mm Hex Key
6mm Hex Key
8mm Hex Key
Cable cutter
Bicycle pump

8mm wrench
10mm wrench
19mm box wrench
19mm wrench
Chain link remover
Sharp knife
Small flat screwdriver

TIP – You will find it much easier to assemble the trike if you can work on a bench or a table at waist height; this avoids too much bending down. If you have to work on the ground, put down some newspaper to avoid the chain, which is protected by grease, from picking up dirt

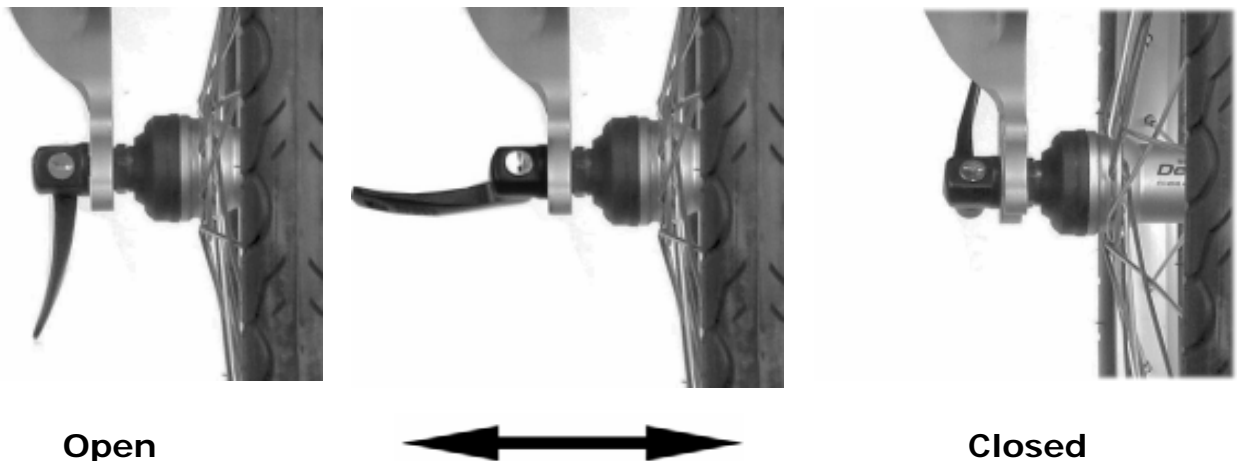
Your trike has been assembled at our works and then taken apart and wrapped for safe and economic shipment. First of all, open the box, unwrap and lay out the pieces.

You should have all the items in the enclosed packing list, as well as any accessories you have ordered.

Assembling your trike is quite simple, even if you have never done any bicycle assembly/work before. If you're uncertain about the work, any decent bike shop will be able to follow these instructions to assemble it for you. It will take you a few hours to put your trike together, but don't be tempted to rush through;

When assembling your trike, please refer to the table in the appendix for the proper tightening torques for all fasteners. Do not over-tighten.

Adjusting and Closing Quick-releases



Quick releases are used in a number of places on your trike; it is important that they are tightened correctly. A quick-release that isn't fully and properly closed can result in parts coming loose or moving while riding. This could cause a serious accident.

A quick-release system consists of two basic parts: a lever that provides the clamping force and an adjusting nut that alters the clamping tension.

With the part you are clamping located properly, adjust the quick-release by opening it, holding both ends and turning one clockwise until, when you close the lever, you feel some resistance. At this point, try to close the lever fully. The adjustment is correct when you can fully close the lever, but with some effort (the lever should leave its impression in the palm of your hand). If you can only close the lever part way, open it, unscrew the adjusting nut slightly and try again. If it closes too easily, tighten it up a tiny bit and try again. Do not try to tighten the quick release by winding the lever around; it will not tighten enough to be safe.

Right..... let's begin assembly!

2.1 Unpacking

Carefully unpack the contents of the box and inspect for any damage that may have occurred during shipping.

You should be able to unpack your trike without resorting to a knife; if you use one, be careful not to cut through the parts or to mark the paintwork. Have a good look at the various packages and familiarize yourself with the various parts. In addition to the main components shown below, there are other small packages of parts. Don't open them just yet; leave them sealed until you need them.



Main frame (cruciform)



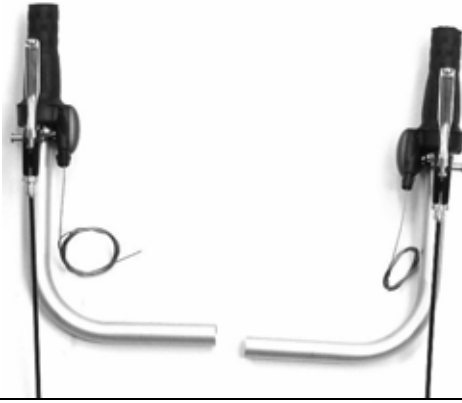
Front Boom



Rear Suspension
(seen folded here)



Chainset



Handlebars



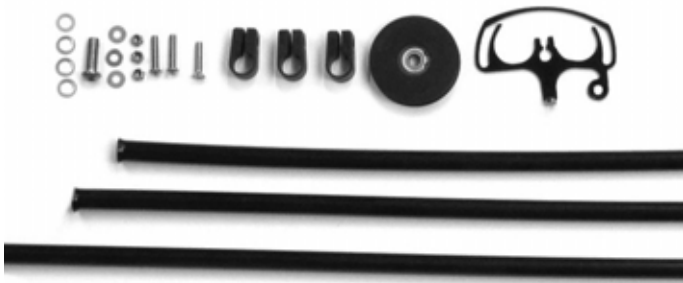
Front Wheels



Rear Wheel



Rear and Front Derailleurs



Chaintubes



Axle bolts



Seat Mount



Seat Cover and Frame

2.2 Fit and set the handlebars to an approximate position.

Find the bag containing the handlebars. Also find the bag containing the brake cables. These are the ones with the inner cables installed. Squeeze the brake lever, and slide the small barrel end into the hanging bracket on the lever. Feed the inner cable down through the slot on the front of the lever (you may have to turn the adjuster to line up the slots). Slacken off the two clamps on the steerer, insert the handlebars and adjust them to an upright position. They only need to be lightly tightened at this stage.

Note: If you have purchased the optional quick-release kit, please refer to the instructions for their installation in Accessories Section of this manual.



Find the 2 cable outer casings that were packed with the handlebars. Slide them over the uncoiled shifter cables. The long one goes on the left cable, and the shorter one on the right cable

2.3 Fit front wheels

Note: If you have purchased the optional quick-release kit, please refer to the instructions for its installation in Accessories Section of this manual.

Identify the left-hand and right-hand wheels (the labels are on tape labels fastened to the spokes. Locate the front wheel 12mm axle bolts and 12mm nylock nuts. Slide an axle bolt through the hub from the outside of the wheel (the side with the five webs on the hub flange), then fit the small brake plate spacer over the axle with the small shoulder on the spacer against the bearing in the hub. Slide on the brake plate. Now slide the bolt with the complete wheel assembly through the kingpost, locating the single hole in the black brake plate onto the 6mm diameter pin which is part of the kingpost steering arm.



Tip – make sure the brake plate is located on the pin as this stops the plate rotating.

This is essential for proper operation of the brake.

With everything located, add the 12mm spring washer and M12 nylock nut and tighten onto the bolt which is protruding on the inside of the kingpost. A 19mm box wrench and 19mm wrench is the best way to tighten the front wheels. The bolt must be done up quite tight (see table in Appendix A for torque setting). Using a Box Spanner and wrench this would be as tight as you can comfortably do this. It is important that these bolts are tight; you will not damage the bearing by tightening to the required torque.

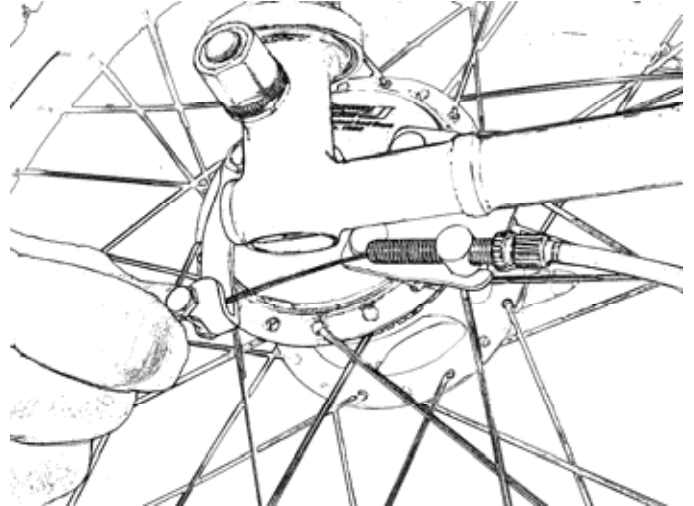
Repeat the fitting procedure for the other wheel.

2.4 Connecting the front brakes.

Slide the brake cable adjusting piece into the lower slot in the brake plate and then squeeze the brake arm on the brake plate to locate the brake cable clamping barrel into the brake arm.

Adjust the brake by screwing out the adjuster until the wheel starts to drag slightly when spun. Screw in again slightly until the wheel runs freely. Screw down the locking ring tightly.

The brake should now work and you can apply the parking brake by squeezing the brake lever and pushing in the button on the side of the lever. Check that both levers feel the same and that they do not touch the handle bar grips when squeezed tightly. Check the brake operation carefully. Repeat for the other side.



2.5 Fitting the rear section to the cruciform.

Slide the rear section into the cruciform, taking care not to damage the plastic shim located inside the rear of the main frame. A small amount of lubricant has been applied at the factory. Evenly tighten the two frame bolts with a 5mm hex key, until the bolts just bite. Align the rear section by eye so it is vertical (stand back a few feet to get a better view). Tighten the two bolts by ¼ turn alternately until the rear section is just clamped enough to prevent it moving around (you will need to adjust this again later).

If you have opted for a different elastomer from the standard, remove the red elastomer from the suspension swing-arm. This is done by pulling and twisting it from its retaining pin, then pushing the new elastomer onto the pin in its place.

Note: If you have purchased the option Quick Release kit, do not put any quick releases into the frame bosses. You must use the M5 bolts which have already been installed.

Note: If you have purchased the optional rear disc brake kit, please refer to the instructions for the kit in Accessories Section of this manual.

Unclip the quick release from the spokes of the rear wheel and thread it through the centre of the axle. The lever should be on the side opposite the gears. Fit the rear wheel to the rear swingarm. You may find this easier if the Velcro restraining strap on the swingarm is fastened around the rear section main tube.

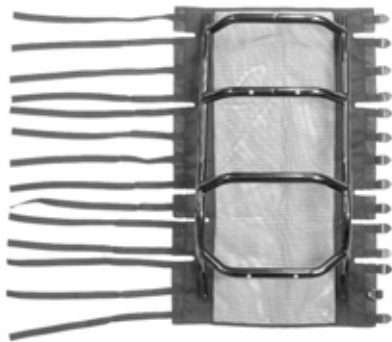
2.6a Assembling the seat – Mesh Seat



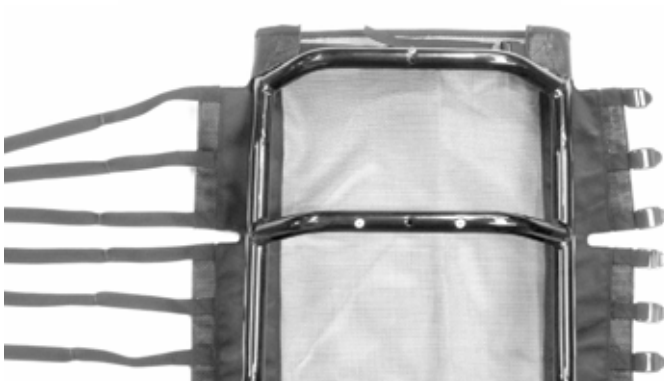
Find the seat frame and the bag with the seat cover in it. Unfold the cover and identify which is the top, bottom, front and back. The top can be identified by the cut-out just below a single strap. The back can be identified by the seams of the edging, which leave a ridge where the material is turned over (the front side is smooth).



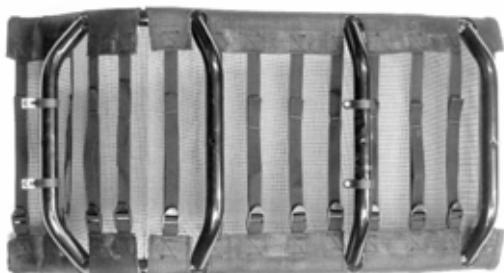
Before you begin assembly, locate the O-rings in the cover pack. Each O-ring needs to be slipped onto a strap on the cover, and pushed 8" (200mm) or more down the strap. These O-rings are used to hold down the loose tails of the straps after the seat has been assembled.



Aligning the top of the cover with the top of the seat frame, place the back of the cover against the frame.



Thread the top strap through the top buckle, and pull snug. Thread the next strap down through its corresponding buckle and pull snug. Make sure the seat cover is centred on the seat frame and the top of the cover is not too high or low. Work your way down the seat frame, fastening up the straps snugly as you go.



When you reach the bottom, check the cover for a smooth, symmetrical fit. When you are happy with the appearance of the seat, tighten the bottom 5 straps so they are tight. The rest of the straps can be adjusted to your preference after you sit on the trike. A good starting point is to slack off each strap in turn, and retighten, pulling the strap gently between your thumb and forefinger. Be careful about over-tightening the straps on the back of the seat; too loose is more comfortable than too tight. When all the straps are adjusted, tuck the loose tails into the O-rings so they don't flap about.

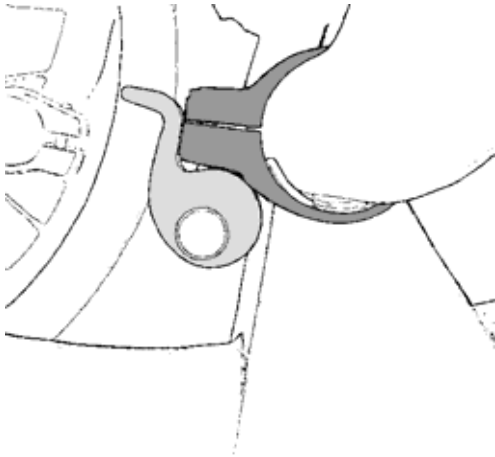
2.6b Assembling the seat – hardshell seat

The hardshell seat requires only the cover to be installed. Carefully line up the cover so that it is centred over the seat, and make sure that the Velcro fastenings line up with one another. Press firmly.

Note: If you have purchased the optional breathable seat cover, please refer to the instructions for the kit in Accessories Section of this manual.

2.7 Fit the seat to the lowest position

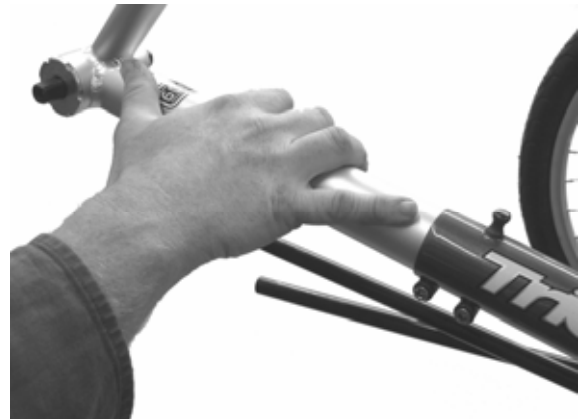
Set the 3 position upper seat mount in the lowest position (see photo). Place the seat onto the trike and see if it lines up with the two mounting cups. Get the seat to fit by sliding the rear section in or out. Try to get the seat mount to sit at an angle similar to the picture below right. Hold the seat on loosely with the 4 plastic clips supplied (quick release clips on the bottom, and bolted clips on the top) and then tighten the 2 lower quick-releases. Tighten the upper seat mount quick-release, and then tighten the 2 upper plastic clip bolts. Check to see that the rear section is still upright and then tighten the two rear section main clamp bolts evenly and tightly.



2.8 Fit the front boom to an approximate position.

Fit the front boom into the frame taking care not to damage the plastic shim located inside the front of the main frame. Position the boom at approximately a hands span from the base of the front derailleur post to the end of the main cruciform.

Note: If you have purchased the optional quick-release kit, please refer to the instructions for its installation in Accessories Section of this manual.



2.9 Fit the Optional Chainring Guard

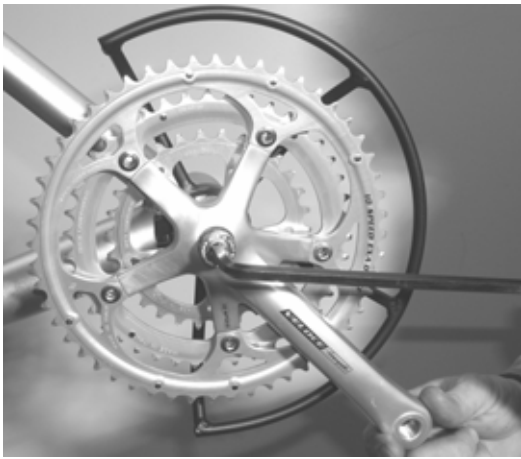
If you have purchased the optional Chainring Guard, please refer to the instructions for its installation in Accessories Section of this manual before continuing assembly.

2.10 Fit the Optional Chainrings

If you have purchased either the 55 tooth outer chainring or the 26 tooth inner chainring, refer to the instructions for their installation in Accessories Section of this manual before continuing assembly.

2.11 Fit the Chainset

You now need to install the left and right sides of the chainset. Place the right crank on the right-hand side square bottom bracket spindle. Put the supplied chainset bolt into the centre hole of the crank and tighten using the 8mm hex key. This bolt must be very tight! Repeat for the left-hand crank, ensuring that the crank arm is lined up with the right-hand crank. Again, tighten very tight using the 8mm hex key.



2.12 Fit the pedals

(Your own if not ordered from us) – **Note:** the pedal threads are handed. The right hand pedal tightens in the normal direction; the left-hand pedal has a left hand thread, and tightens in the opposite direction to normal.

2.13 Adjust the seat angle

Sit on the trike (see section 5.1) and decide whether the seat angle suits you. The seat can be set more upright (it was set to maximum recline in section 2.7) by simply opening the seat mount quick release, sliding the seat mount off the quick release, and slotting it back over using a different set of slots. Please refer to section 3.4

2.14 Set the handlebars

The handlebars on your trike adjust forward and back, as well as for width. Sit on the trike and adjust the bars to a position that feels comfortable. Typically, the angle of your elbow joint should be slightly more than 90 degrees open. Check the clearance between your hands and the wheels; also check the clearance between the brake levers and frame at full steering lock. Adjusting the handlebars to their widest comfortable position that doesn't interfere with the front wheels will give you the maximum amount of steering movement. Tighten the handlebar clamp bolts.

2.15 Set the front boom

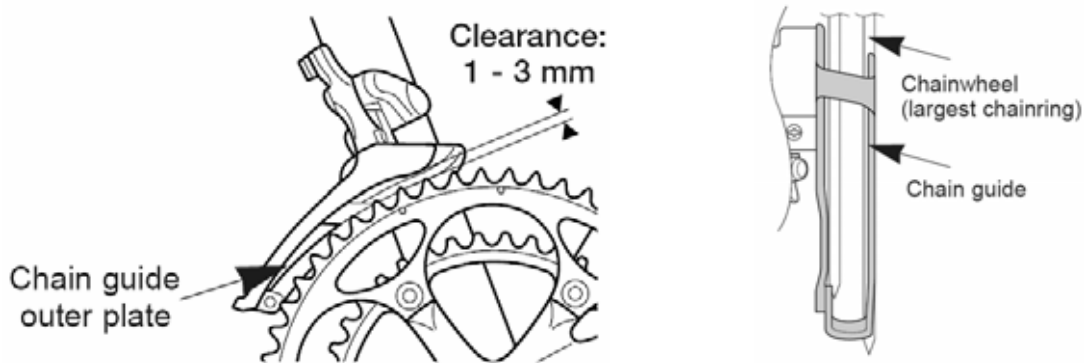
Set the leg length by sitting on the trike and placing your **heel** on the pedal. Adjust the boom so that your leg is almost straight when the pedal is at its furthest away from you. Set the front boom upright (by eye), and then tighten the 2 clamp bolts.

Check the boom is not extended past its minimum insertion length. The end of the boom should not be visible in the slot in the underside of the frame.

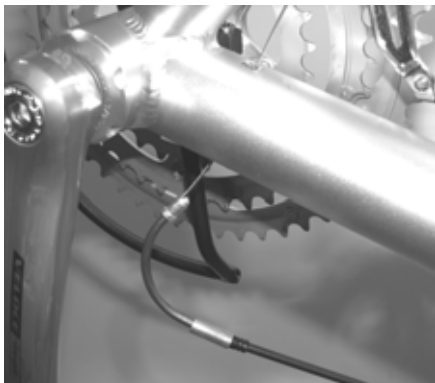
2.16 Install and connect the front derailleur

Next, the front derailleur needs to be installed. Its position is determined by the size of outer chainring. The front derailleur is clamped around a plastic band, which is slid over the front derailleur post. Check the photographs to see the correct orientation of the plastic band. Tighten the supplied M5 bolt lightly so you can adjust the position of the derailleur. The position of the derailleur must be set so the clearance between the outer plate of the cage and outer chainring is roughly 2-3mm, when viewed from the side. When viewed from above, the derailleur cage should be parallel to the chainrings. Tighten up the clamp bolt when the derailleur is located correctly.





Thread the front gear cable (left hand shifter) outer casing through the guide on the side of the frame and up towards the end of the front boom. The front shifter casing is packaged with the handlebars, and it is the longer one. Thread the inner wire through the outer casing and then through the cable guide tube (chromed noodle). Pass the cable guide up through the hole on the underside of the front boom, so that it just pokes out of the hole on the top face of the boom, checking that it is seated correctly.



Pull through any slack cable. Holding the cable taut, turn the shifter through its range of movement to check the cable moves smoothly and that the cable is properly seated inside the shifter. Clamp the inner wire at the front derailleur (5-7 Nm, 4-5 ft-lbs).

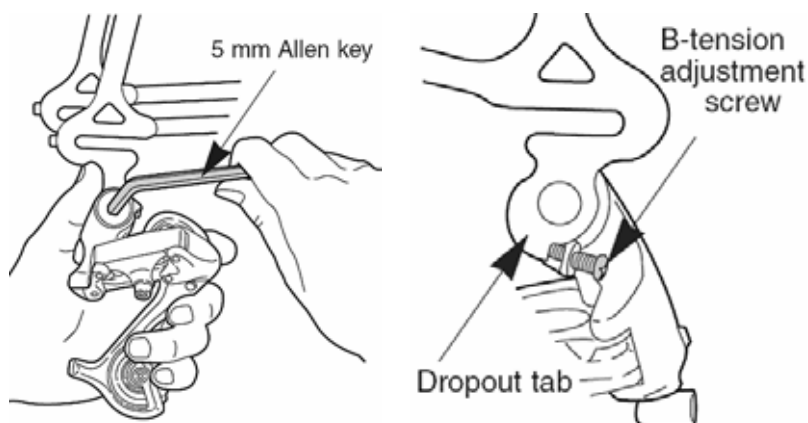
TIP – make sure the left hand shifter is set to the “1” position in the indicator window (smallest gear setting) and the cable and outer casing are located properly in the cable stops.

TIP - Do not trim any cables until you are happy with the various settings of front boom and gears. The loose end of the cable can be tightly coiled so that it is out of the way.

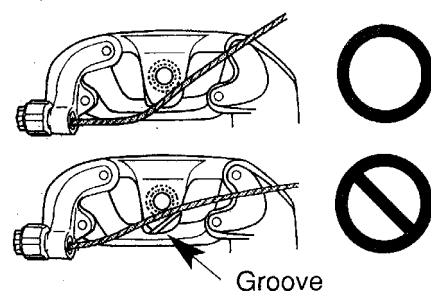
2.17 Install and connect the rear derailleur

Fit the rear shifter cable housing over the rear shifter cable (right hand shifter). This is the shorter cable housing that was packed with the handlebars. Thread the cable housing through the cable guide and into the stop, both located on the right side of the frame.

Find the bag with the rear derailleur parts in it. Fit the rear derailleur to the rear dropout using a 5mm hex key, making sure the B-tension adjustment screw doesn't come into contact with the dropout tab.

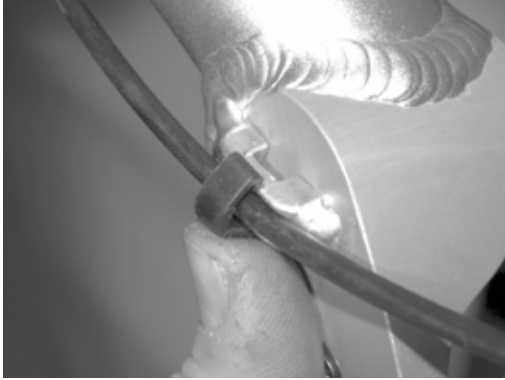


Note: Be sure that the cable is securely in the groove.



Adjust the B-tension screw so it is screwed in about 2/3 of the way. Check that the rear derailleur stop screws are approximately set as shown in section 2.21 (final adjustment will take place once the chain is installed)

Fit the long length of gear outer casing into the rear derailleur and around to the cable stop on the rear right-hand side of the main frame. Clip the cable outer casing to the 3 guides using the black plastic clips provided.



Thread the inner wire cable through the outer casing. Screw the barrel adjuster at the shifter fully in first, then out 1 turn. Do the same with the adjuster at the rear derailleur. Check the cable is located correctly in the cable guide. Holding the cable taut, turn the shifter through its range of movement to check the cable moves smoothly and that the cable is properly seated inside the shifter, then connect and clamp the cable at the rear derailleur while gently pulling through any slack in the system.

TIP – make sure the right hand shifter is set to the “9” position in the indicator window (smallest sprocket setting) and the cable and outer casing are located properly.

Cut the cable off leaving about 3” (75mm) past the cable clamp, and crimp the cable end cover onto the cable end.

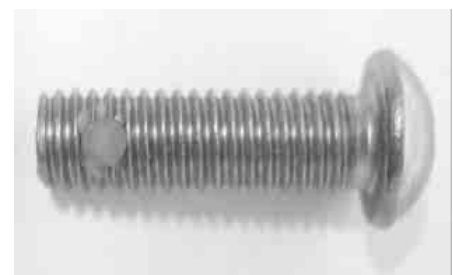
Check at this point that the brake and shifter cables are routed correctly. They should look like the photos below.

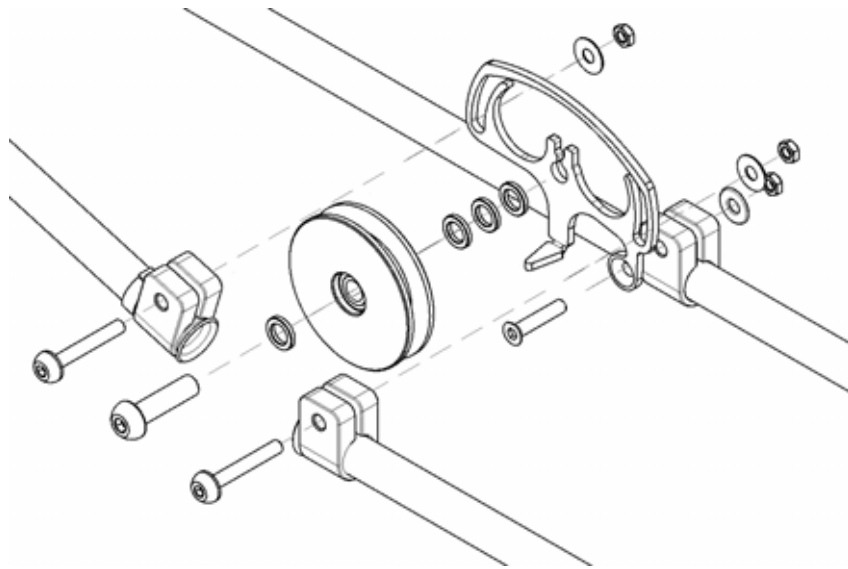


2.18 Assemble the chain tubes

Lay out the parts of the chaintube as shown in the photo. The chaintubes are bolted onto the pulley plate with plastic clips. It is important that the chaintubes are assembled as shown, particularly the chain tube with the metal clip. This clip keeps that tube from sliding forward into the pulley. Push the self-locking bolt through the bearing in the pulley, locating the space washers as shown in the diagram. Push the bolt through the middle of the pulley plate, and mount the chain tube assembly and pulley onto the frame. Ensure that the small tab on the frame locates in the notch on the pulley plate (just above the bolt). When tightening the plastic clips onto the pulley plate, be careful about not over-tightening the bolts; it is possible to damage the plastic clips if you do.

Note: The main bolt which holds the pulley and pulley plate to the trike is a self-locking bolt. It has a small piece of nylon imbedded in the threads. You will feel some resistance when the nylon starts to move down the threaded lug in the frame, but keep turning the bolt until it is tight.





2.19 Check the chain tube lengths

Check for clearance between the chain tubes and the front chainset. If the top chain tube at the front is too long, shorten by cutting the tube at the front end to the required length with a sharp knife.

If the lower front tube is too long, adjust the front position of the tube by loosening the tube clamp at the pulley and sliding the lower tube rearward to the required position at the front and re-clamp the tube.

When the front of the lower tube is properly positioned, trim the rear of the lower tube off so it is the same level with the end of the upper rear chain tube. This is essential to allow proper folding of the rear section.



2.20 Fit the chain

Find the pack containing the chains and the 'R' pins. Remove the pulley and chain tube assembly from the trike. Clip an 'R' pin through one end of each of the two chains. Hold the chain tube assembly vertically and drop a chain down each tube (for the top tube, pass the chain around the pulley and down the other tube); the 'R' pins will prevent the chains from dropping right through.



Add two more 'R' pins to the bottom ends of the chains; this keeps them in the chain tubes while they are being fitted. Refit the chain tube set and pulley to the trike making sure the tab on the frame is engaged in the pulley plate. Also make sure the pulley clamping bolt is tight. Check the pulley plate is secure and cannot rotate.



Twist the right hand rear shifter to the "9" position so that the rear derailleur lines up with the smallest rear sprocket. Twist the left hand front shifter to the "1" position so that the front derailleur lines up with the smallest front chainring.

At the front of the trike, pull the top chain through the top chain tube. Pass the chain through the front derailleur cage, around the small chain ring and then connect it to the lower return chain at the front using the quick connect link. Remove the 'R' pin from the top and bottom chains.

Now, checking that the chain is not twisted inside the chain tube, thread the bottom chain up through the derailleur and over the cassette.

TIP - make sure the chain is correctly routed through the rear derailleur cage and goes the correct side of the tab on the derailleur cage between the two jockey wheels.



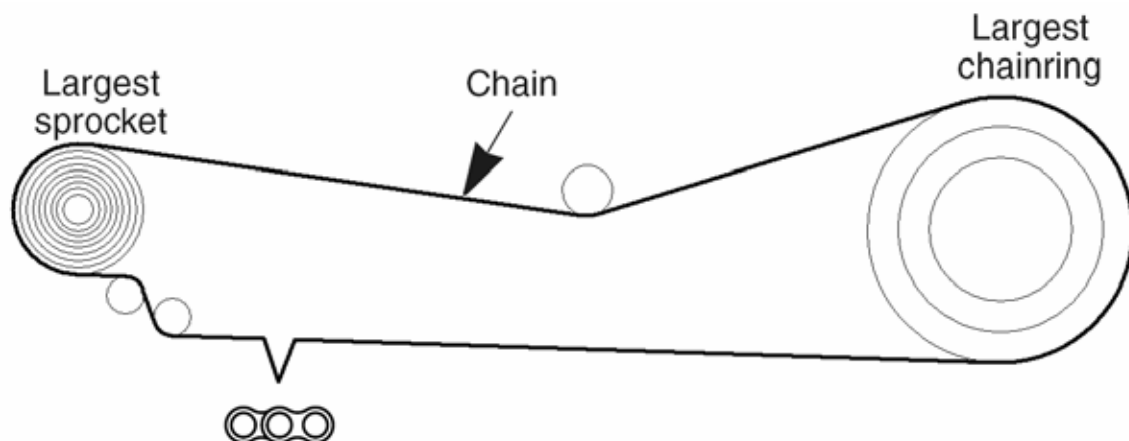
Connect the bottom chain to the top chain using the quick connect links supplied. Make sure that the chain is not twisted. Remove the last 2 'R' pins.



Now set the chain to length by adding or removing a section of chain between the rear derailleur and the lower chain tube with a chain rivet tool as below. Move the chain until one of the connecting links can be seen between the rear derailleur and the lower chain tube. Open the link and then work out how much chain to remove. Use an R pin to help stop the chain going back up the chain tube. Make sure you leave enough chain so that it can run from largest chain ring to largest cassette sprocket.



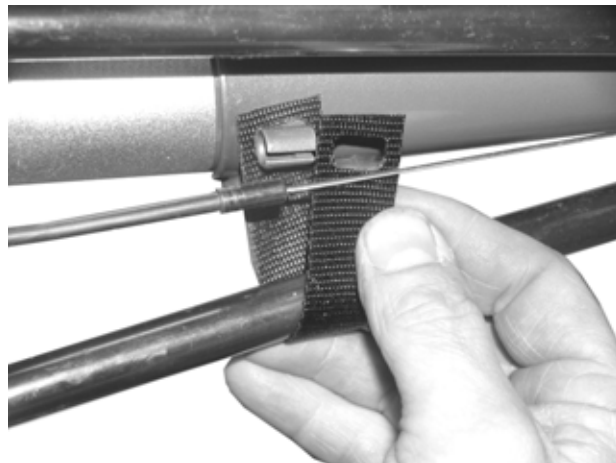
Add 2 links (with the chain on both the largest sprocket and the largest chainring). This should leave just enough slack so that the rear derailleur jockey wheels are pointing forward but so that they can still move up a fraction. Then check that there is not too much slack when using the smallest chain ring and smallest cassette sprocket.



TIP – get an extra pair of hands to help with this. Make sure that any links you alter with the chain link remover are not stiff on the rivets. If in doubt, remove fewer links than you think as removing links is easier than riveting links back in. Use the quick disconnect link to open the chain and then punch out links and quick connect back together.

When you've finished adjusting the chain length, check at the pulley plate where the chain enters and leaves the chain tubes. The plastic lips should be adjusted vertically so the chain running thru tubes at plate - adjust.

The chain tubes have come with a small piece of nylon webbing with 2 square holes in it. This holds the back end of the lower chaintube, and keeps it from sagging. The webbing strap is slipped over the rear cable stop on the frame. Pull the cable housing from the stop, and then slip the hole in one end of the strap over the cable stop. Loop the strap around the bottom chain tube and then slip the other loop over the cable stop. Replace the cable housing in the cable stop.



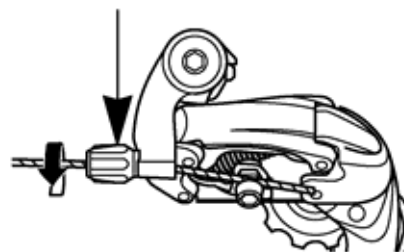
2.21 Check the gear shifting

Check the rear gears are shifting correctly. Raise the rear wheel off the ground by getting a helper to hold it up or standing an object under the left side dropout so that the pedals can be turned making the chain turn the rear wheel. Gently twist the right hand shifter up through the gears one click at a time whilst turning the pedals. Take care on the rear cassette that the chain does not jump between the largest sprocket and the spokes. This is prevented by the low adjustment limit screw on the rear derailleur which can be adjusted if required. Check also that the chain doesn't drop off between the smallest sprocket and the dropout. This is adjusted using the High Adjustment screw.

Set the left front shifter to the "1" position and the right rear shifter to the "9" whilst turning the pedals then check that there is no excessive slack in the gear cables. Slack must be removed by unclamping, pulling through and re-clamping the gear cables. Check the rear derailleur indexing by turning the right hand (rear) shifter 1 click to the "8" position whilst turning the pedals and checking that the rear derailleur has shifted the chain to the second from smallest sprocket. Adjust shifting by carefully turning the cable adjuster at the back of the trike on the rear derailleur until the chain runs smoothly on the second from smallest sprocket. Shift back to "9" and try shifting up to "8" again. It is not enough that the chain should run quietly in each gear, it should also move smartly from one sprocket to the next, without clattering or jamming. Now check for smooth changing up through the range, checking one pair of sprockets at a time (8-7, 7-6, etc.) Make any minor adjustments by turning the cable adjuster.

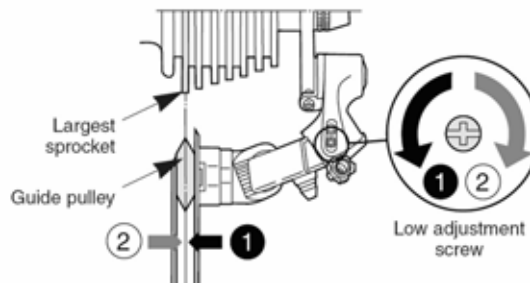
Cable Adjustment

Adjustment bolt



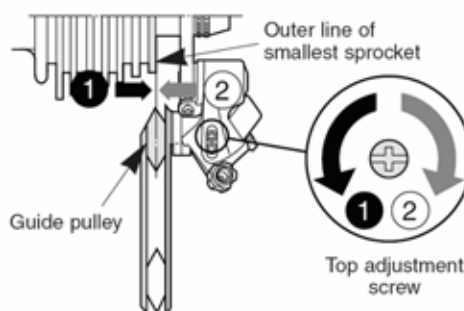
Low adjustment

Turn the low adjustment screw so that the guide pulley moves to a position directly in line with the largest sprocket



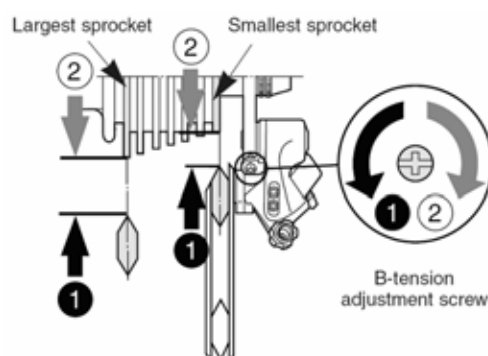
High adjustment

Turn the high adjustment screw to adjust the derailleur so that the guide pulley is in line with the outer line of the smallest sprocket when looking from the rear



Adjusting the B-tension adjustment screw

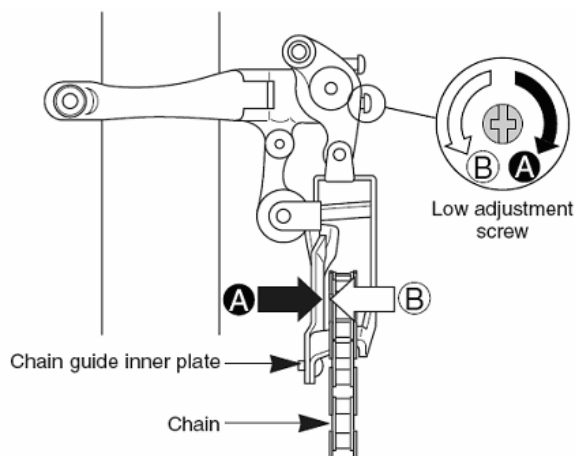
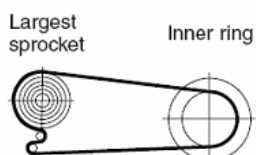
With the chain on the largest sprocket and the smallest chainring, turn the cranks backwards. Adjust the screw so the guide pulley as close as possible to the sprocket without touching. Move the chain to the smallest sprocket to check that the guide pulley doesn't touch.



Check the front gears are shifting correctly. Adjust the cage limit screws if required.

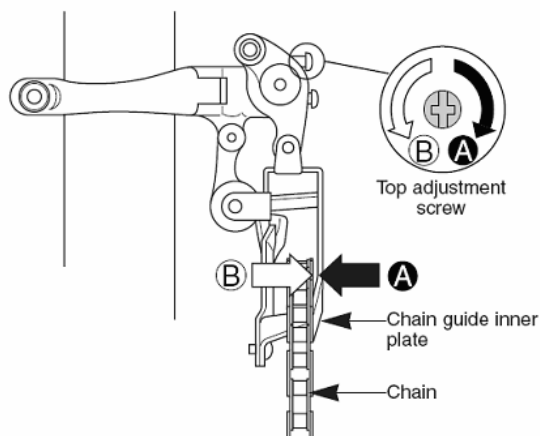
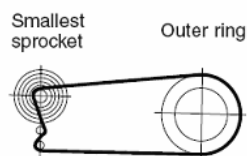
Low adjustment

Set so that the clearance between the chain guide inner plate and the chain is 0 - 0.5 mm.



. Top adjustment

Set so that the clearance between the chain guide outer plate and the chain is 0 - 0.5 mm.



2.22 Fit the rear mudguard

Note: If you have purchased the optional quick-release, full-wrap rear mudguard kit, please refer to the instructions for its installation in Accessories Section of this manual.

The standard rear mudguard clips quickly on and off of a bracket which is part of the seat mount. Assemble the parts of the mudguard as shown in the picture below, and clip into place on the upper seat mount. Tighten the thumbscrew to secure the mudguard.



2.23 Fit the mirror



The mirror comes with instructions showing how it is to be assembled. The mirror is mounted in the top of one of the handlebars (right handlebar if you drive on the left, left handlebar if you drive on the right). A plastic plug is provided for the opposite handlebar. Many people prefer to ride with a mirror both sides

2.24 Fit the Flag

Place the flag in the flag holder hole in the left or right side at the top of the seat frame.

If you have an 'S', the flag mounts in the tube on the top seat mount rail.



2.25 Reflectors and Bell

Reflectors and a bell are supplied with your trike. The bell can be mounted anywhere on the handlebars where it can be reached easily and doesn't interfere with steering the trike. The reflectors have brackets which allow the front reflector to be mounted on the front derailleur post, and the rear reflector to be mounted on the top rail of the seat.

2.26 Check nuts and bolts

Generally, check all nuts, bolts and quick releases to make sure everything is tight.

3.0 Adjusting your TRICE

Fine-tuning for leg length, seat angle, handle bar width / angle, brake lever reach, tyre pressure etc are all well worth taking time to set to your personal preference.

TIP - Experiment but always go for a reasonable (a mile or two) test ride to decide if an adjustment is right for you.

3.1 Tyre pressure

Typical tyre pressure for the standard tyres is about 70psi (4.6 bar). Do not inflate the tyres more than the maximum pressure recommended on the tyre sidewalls. You will need to experiment a bit to find the tyre pressure that suits you best. Higher pressures will allow the trike roll more easily, but will transmit more road shock to the rider. Lower pressures will feel much more comfortable, but there can be more rolling resistance. Also try experimenting with tyres; there are now large cruiser tyres available which can provide a comfortable ride and reasonably low rolling resistance, as well as small high-pressure racing tyres that offer very-low rolling resistance and sport-car type handling

3.2a Mesh Seat Cover

When new both the seat cover and the straps stretch a little, and in the first few weeks of use you may need to re-tension the seat by tightening up the straps. In time it will settle down. For maximum comfort you may need to tighten the cover more in some places than in others. In general, the base of the seat should be tight, and the back looser.

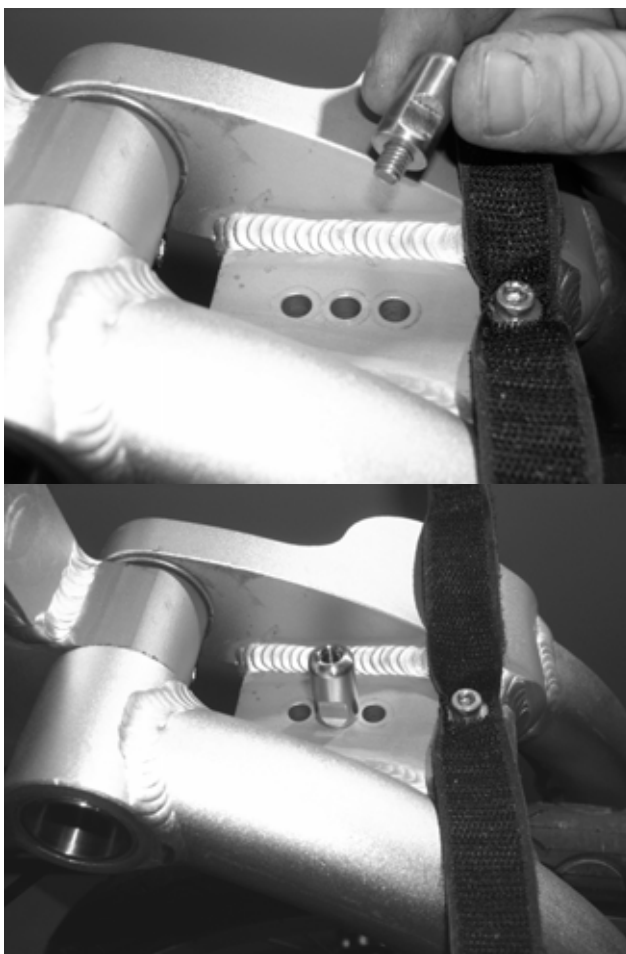
3.2b Fitting the hard-shell seat to you

The hard-shell seat is supplied with 2 sheets of adhesive-backed foam. Try experimenting with cutting out pads and sticking them on. You should be trying to pad any spaces where you do not touch the seat. *Don't pad the pressure points*; pad around them. You can temporarily hold the pads in place with a bit of adhesive tape. Don't peel off backing of the foam sheet until you are certain of their position. The adhesive is very strong.

3.3 Suspension adjustment

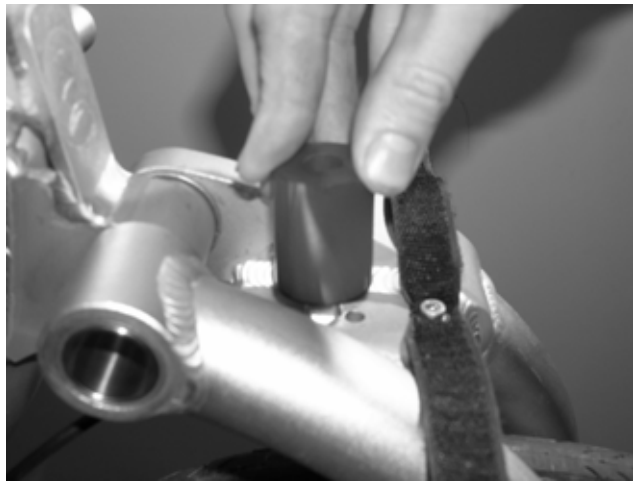
The suspension adjusted is accomplished by the selection of elastomers and mounting positions. To adjust the suspension, find an assistant, and then proceed as follows:

- Shift the chain onto the smallest sprocket at the rear ('9')
- Select the elastomer based on the table in Appendix B.
- Screw the shock pin into the centre hole in the shock plate.
- Sit on the trike and put your feet on the pedals. Press lightly to apply a small amount of tension to the upper chain.
- Have your assistant look at the trike from the side. In profile, the chain should appear to pass about through the middle of the suspension pivot. If you don't have an assistant, reach under the seat and put your finger (carefully! Don't trap it in the pivot) into the hollow pivot pin. Feel whether the chain is higher or lower than the centre of the pivot. If the chain is higher than the pivot, the suspension is too compressed, and the elastomer has to be moved to the upper hole on the shock plate. If the chain is still higher than the pivot, try replacing the elastomer with a harder one.
- If the chain is lower than the pivot,



the suspension is not compressed enough, and the elastomer needs to be moved to the lower mounting hole. If the chain is still lower than the pivot, try replacing the elastomer with a softer one.

- The elastomer is removed by pulling and twisting it off of the shock pin. Unscrew the pin and move it to the new hole. Press the elastomer into place on the pin again.



The elastomers have different compression characteristics, and you may find other combinations of elastomer hardness and pin position which suit the roads you ride on and your riding style better; it is just a matter of trying different combinations. The elastomer system is simple and small enough that you can carry a couple of elastomers in your pocket and change them when you are out on a ride. If you carry a significant amount of luggage (perhaps you are going on a long tour), re-tune the suspension with the trike loaded; you will definitely notice the difference.

The rear swingarm is held in the normal position by a double-sided Velcro strap. This bolts on through the mudguard hole as shown in the picture above. The purpose of the strap is to keep the rear swingarm from dangling when the trike is picked up. To fasten, place the trike on the ground with no weight on it. Wrap one side of the Velcro strap around the curved frame tube where the corresponding Velcro strip has been placed. The other loose end of the Velcro strap is then wrapped over the first.

3.4 Seat Angle Adjustment

The seat has 3 positions of adjustment, and adjustment is simple and quick.

- Loosen the seat mount quick-release lever.
- If you want to make the seat more reclined set it to the slots closest to the seat cup. If you want to make the seat less reclined, then set it to the slots furthest from the seat cup.
- Re-tighten the seat mount quick-release. If you have fitted the suspension rack, make sure the rack mounting plates are also hooked in place.



3.5 Leg length

A small adjustment can be quite noticeable, just like adjusting the saddle on a conventional bike.

- Change gear to the smallest chain ring.
- Undo the two clamp bolts under the front boom. They must be loose.
- Slide the front boom in or out by twisting and pulling or pushing

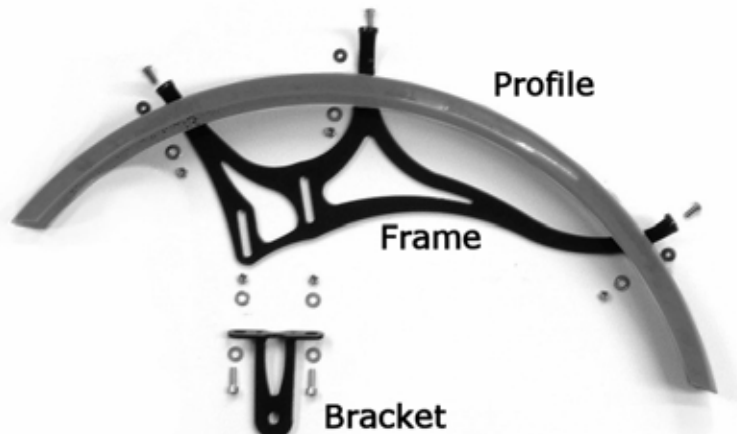
TIP – It is easier to move the boom if you get a helper to it on the trike with both front brakes on.

- Check the boom is vertical by eye. It's not necessary to measure anything, if it looks upright, then it will be fine.
- Tighten the two clamp bolts under the front boom.
- If you have moved the boom by more than approximately 10mm you will need to check that you have the correct chain length (see Fitting the Chain - section 2).

4.0 ICE Optional Accessories

4.1 Front Mudguards

Assembly



The mudguards consist of three parts

- the mudguard bracket, which fastens to the trike
- the mudguard frame, which fastens to the bracket, and holds the plastic profile in place. These are left and right handed.
- the plastic profile. This is pre-drilled to fit the frame

Begin by bolting the profile to the frame. The 3 drillings in the profile ensure that it can only be mounted one way. A M5 x 12mm button-head bolt goes through the hole in the frame, a rubber washer is then placed on the bolt, followed by the profile, the metal washer, and then the nylock nut. Tighten the nut snugly until the rubber washer begins to compress. **Do not over-tighten.**

The bracket is then bolted to the frame. Using the M5x16 cap-head bolts with a metal washer on them, pass them through the bracket and the frame as shown in the photo, and then fasten on the other metal washer and nut. Tighten snugly (you will be adjusting this when you fit the mudguards to the trike)



Fitting

Front mudguards fit onto the steering pivots and can be quickly removed by one bolt in each unit.

To fit the mudguards, remove the bolt and washer from the top of the steering pivots and then clamp the mudguards directly onto the top of the steering pivot re-using the bolt and washer.



TIP – The mudguard clamping bolts do need to be done up tight to prevent the mudguards from pivoting round in use.

- To remove a mudguard, loosen and remove the single clamping bolt and washer at the top of the steering pivot on each wheel.
- Cover the exposed mounting hole by re-fitting the bolt and washer.

Note: If you have purchased the optional quick-release kit, please refer to the instructions for the kit in this section of this manual.

The mudguards can also be adjusted to fit various tyre sections. With the mudguard fitted to the trike, slightly loosen the two bolts holding the mudguard bracket to the frame (so the two parts can just be slide against one another). Move the mudguard frame to where, if viewed from the side, there is an even amount of clearance (about 6-8mm) between the tyre and the mudguard profile. Always check that the wheel spins freely after adjusting mudguards.



4.2 Computer

A cycle computer can be fitted with the aid of the optional mounting kit. The computer bracket bolts onto the bottle bosses on the main frame (just in front of the main cross joint).

The sensor is fitted to the kingpost balljoint mount and set to line up with the magnet clamped onto the spokes. To fit the sensor mount, you will need a thin 11 mm spanner, and a 13mm spanner. The 11 mm spanner is to grip the small flats of the ball joint while you use the 13mm spanner to loosen or tighten the ball joint nut. Secure the cable to the frame along the underside of the cross axle using electrical tape.



4.3 "Handlebar" bag side mount

This optional item allows a standard "handlebar" bag to be mounted beside the seat. The mount is clamped around the seat frame cross rail and adjusted to the desired position. The bag side mount is made to take a standard Klickfix handlebar bag fitting, but many others will fit as well. Follow the fitting instructions that came with your bag, to mount the bag onto the side mount.



4.4 Lights.

Front lights may be fitted to the front derailleur tube utilising the optional ICE front light mount. Rear lights can be mounted to the rear of the carrier, on the upper seat cross-rail, or on optional neck rest. The instructions for installing the front light mount are printed on the packaging. Please ensure that the mount is tightened properly.

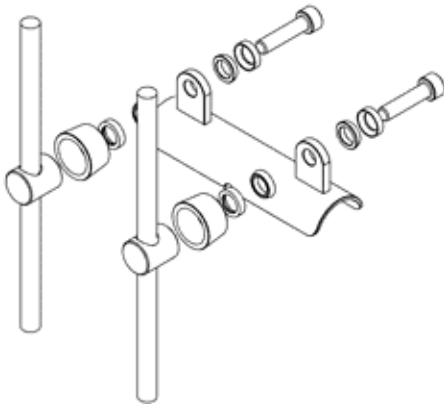


4.5 Extra water bottle mount

An extra water bottle mount can be fitted to the seat frame by using the option ICE bottle cage mount and a bottle cage. Fitting instructions are included with the mounts.



4.6 Neck rest

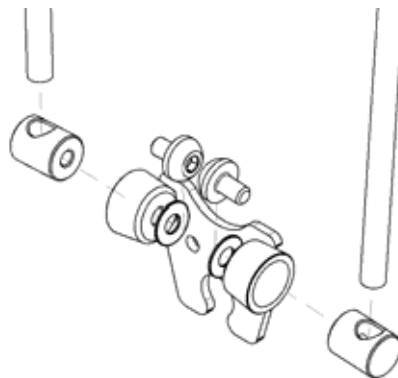
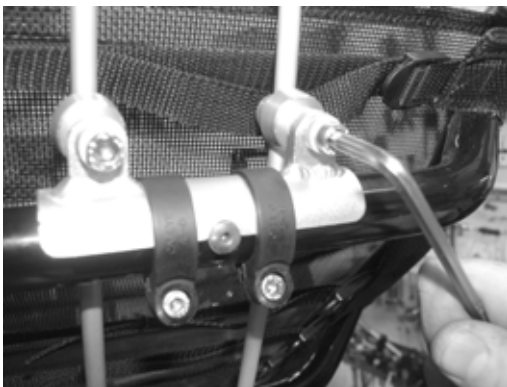


Assembly

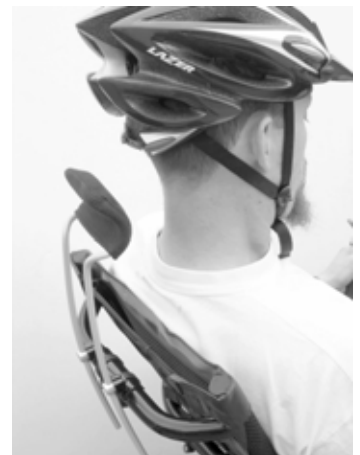
The neck rest is assembled as shown in the diagram. The cup and socket washers allow the neck rest to be adjusted forward and back, and sliding the head rest assembly in the clamping bars allows adjustment for height. An additional adjustment for angle can be made by reversing the fittings on the base. There are 2 notches in the base that can engage the rivet on the top seat rail. The notches are different depths, and by changing which way the base is clamped on, can change the angle of the whole assembly.

If you have an S, the headrest is fastened to the seat using a 'sheephead' bracket. Assemble the bracket onto the headrest as shown in the diagram below, then bolt the sheephead bracket to the back of the seat with the supplied fasteners

Meshback Seat Models



Hardshell Seat Models



Headrest Light mount

Adjustment

The optional neck rest is fitted to the top rail of the seat frame. The neck rest is adjustable for height and angle, and is designed to suit a wide range of riders. We have found the best position for the neck rest is one where the pad sits just under the base of the skull. This allows the rider to wear a helmet, and minimises any transmission of road vibration to the rider's head. To adjust the neck rest, slacken off the 2 adjuster nuts and move the neck rest to the desired position. Most people find the best position is where it doesn't touch your neck or head when you are riding on level ground, but allows you to rest your head when you are climbing. Making sure that it is upright when viewed from the rear, tighten the two nuts.

The neck rest light mount is easily installed. Slip the neck rest frame from the bracket, slide the mount over one leg, and reinstall the frame onto the bracket. Slide the mount to a suitable height, and tighten the grub screw to lock in place.

4.7 Quick-release kit

The quick-release kit comes with a set of quick-releases to make folding and disassembling your trike into a quick and easy job. The kit consists of:



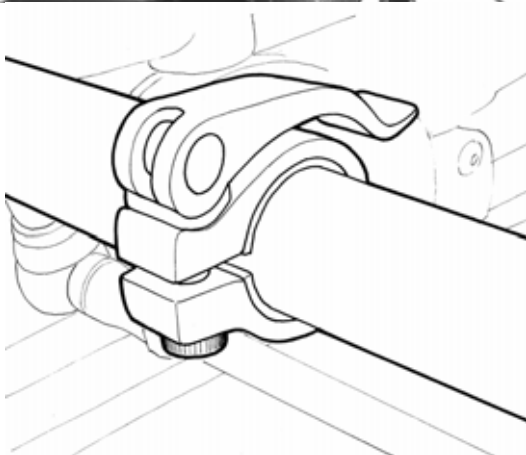
2 x 12mm quick-release axles. These are installed in place of the 12mm axle bolts. Remove the finger nut from the end of the quick-release bolt. Slide the quick-release bolt into the hub from the outside, in exactly the same manner as you would the regular 12mm axle. When the bolt has been slid into the kingpost, screw the finger nut back onto the end of the bolt, and tighten the quick-release lever.



2 x 6mm front boom quick-releases. These are installed in place of the 2 - 6mm bolts that clamp the boom into place. Remove the 6mm bolts from the frame using a 5mm hex key. Slide the quick-release into the hole where the bolt was, and thread the quick-release into the frame to adjust its tightness. Make sure that the aluminium spacer on the quick-release sits down in the hole where the head of the bolt used to be. **These quick releases should not be installed in the back of the main frame.**

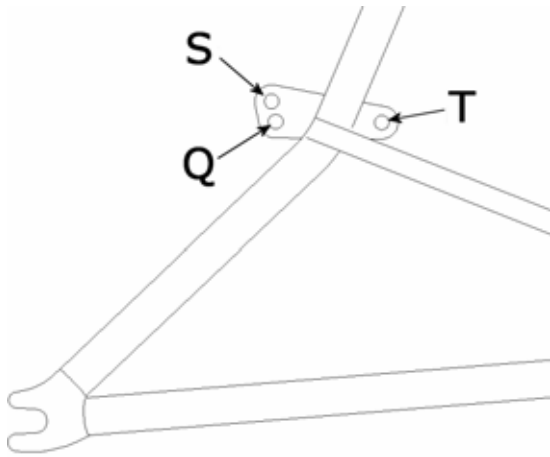


2 x 6mm mudguard quick-releases. These replace the 2 bolts that hold the mudguards in place. Remove the old countersunk bolts using a 4mm hex key. Slide the quick-releases into the mudguard brackets and then thread them into the captive nuts in the kingposts. Screw them down to adjust the quick-release tension. You do not need to use the aluminium cap that normally covers the top of the kingpost. **These quick releases should not be installed in the back of the main frame.**



2 x quick-release handlebar clamps. These replace the handlebar clamps which are installed on your trike. To remove the old clamps, loosen the clamp bolts with a 5mm hex key, and then pull them from the end of the centre handlebar. The quick-release handlebar clamps are pushed into place, with the quick-release lever located behind the handlebar, with the slot in the clamp roughly lined up with the slot in the centre handlebar.

4.8 Assembling and Fitting the Suspension Rack



Assemble the rack by finding the upper rack arms, and bolting them onto the correct lug, as show in the diagram.

The supplied mudguard can now be fastened in place. A M5 x 12mm button-head bolt goes through each mounting hole in the rack, a rubber washer is then placed on the bolt, followed by the profile, the metal washer, and then the nylock nut. Tighten the nut snugly until the rubber washer begins to compress. **Do not over-tighten.**

Fasten any lights or reflectors onto the rear of the rack.

Slide the long quick release through the lower rack mount (the spindle welded into the frame)



Slacken off the seat mount quick release.

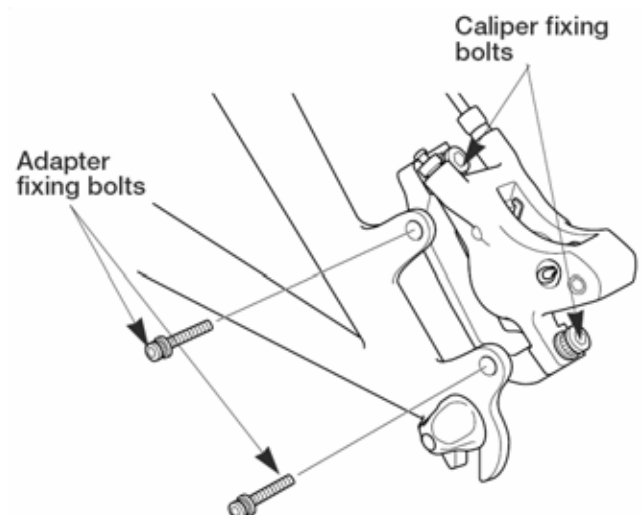
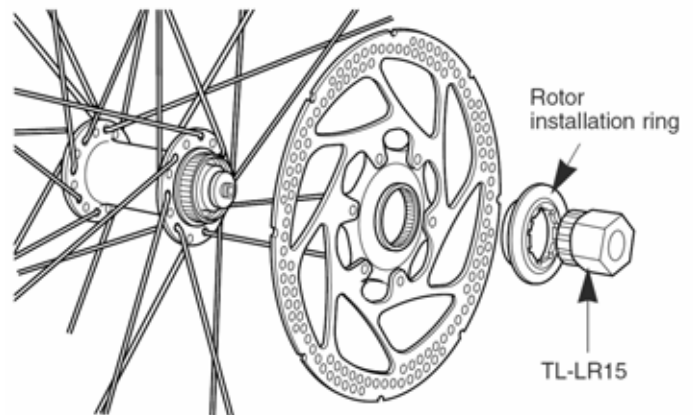
To fasten the rack to the trike, it is easiest to undo the top seat mount quick release, unclip the top seat mount, and rotate the seat forward.

Slide the lower mounting dropouts on the rack onto the lower rack mount on the frame. Rotate the rack forward slightly until the upper rack arms can slip over the seat mount quick release.

Rotate the seat back into position, locating the seat mount back onto the seat mount quick release. Tighten both quick releases.

4.9 Rear disc brake

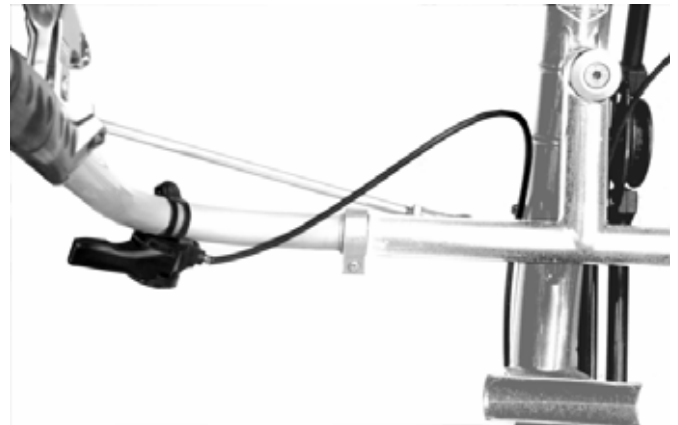
- Fit the rotor – With the wheel out of the bike, unscrew the quick release, and then remove the rubber cap on the non-drive side of the axle. Underneath you will find the splined end which will take the rotor. The rotor is slipped over the splines so the disc is outboard. Put a small amount of grease on the threads of the locking ring and screw it down in the centre of the disc. To tighten the locking ring, insert a Shimano lock-ring tool (TL-LR15, this is the same tool that is used to tighten on a rear cassette, available from any bike shop), and firmly tighten (40nm, 29ft-lbs). Replace the wheel in the bike.
- Bolt the brake caliper on – the brake is held on using the 2 M6 adapter fixing bolts supplied. Before installing the caliper, slacken the 2 caliper fixing bolts on the top of the caliper mount, so the caliper can slide easily over the brake rotor.



- The brake lever is attached to the left-hand handlebar using the single bolt supplied. Gently bend the bracket open to slip it over the bar, then bend back and replace the bolt. Slide the inner cable through the outer cable housing and run the outer cable housing to the rear brake, clipping it in place with cable ties along the left side of the frame when you are happy with its position. Check that the lever or cable does not foul the seat or the track rod anywhere within the full range of steering movement. Run the cable housing under the rear swingarm, and fasten it in place using the cable clips provided (same type of clip that hold the rear derailleur cable in place).



- Feed the cable and housing into the socket on the brake caliper, and attach the end of the inner cable to the brake caliper arm, making sure that the lever is in the full 'off' (anti-clockwise) position. Cut the inner cable, leaving about 2 inches (50mm) past the clamp, and crimp the cable end cover onto the inner wire.



- Adjustment – the disc brake has 2 pads inside. Their position is adjusted using a 3mm hex key in the socket on each side of the caliper. With the caliper on the trike, caliper fixing bolts loosened, and the wheel in place, wind both pads in until the disc rotor is clamped between them and centered in the caliper. Turn the brake lever clockwise to ensure the rotor is solidly clamped, and then tighten up the 2 caliper fixing bolts. Turn the brake lever fully counter-clockwise then back off the pad adjustment just enough for the wheel to run freely without the pads dragging on the rotor. Test to make sure that when the brake lever is used, the brake grips properly.

4.10 Fitting Radical Bags

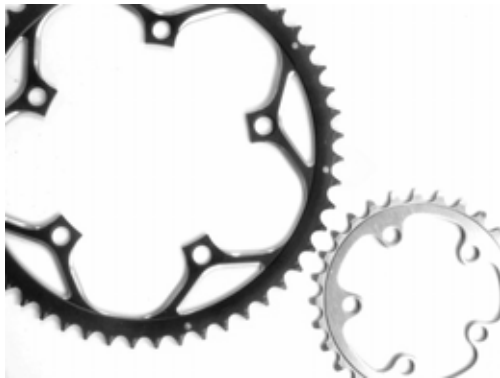




Radical bags are extraordinarily simple to fit. The bags are simply held the right way up (so you can read the writing in the side) , and they are draped over the seat. The top strap is either wrapped around the top seat tube if you don't have a neck rest fitted (photo left), or looped over the neck rest base if it is fitted (photo lower right). Gently pull the bags until they fit neatly around the set.



4.11 Fitting the optional Chainrings



If the chainset has been installed, you will need to obtain a crank extractor in order to remove it.

- 26 tooth inner chainring - With the chainset removed, use a 5mm hex key to remove the 5 bolts that hold the inner chainring in place. Note if there is a recessed hole in the chainring where the bolts are fitted; the new ring will have to be re-fitted in the same way. Remove the ring, and replace it with the 26 tooth ring, and then replace the bolts. Tighten them evenly in a pattern, working on one bolt, then one opposite. Replace the chainset on the trike.
- 55 tooth outer chainring. To gain proper access to the chainring bolts, it will be necessary to remove the inner chainring first, following the instructions above. Remove the 5 bolts that hold the middle and outer chainrings onto the crank arm. You will need to hold onto the nut (the part against the middle chainring) using either a large flat screwdriver, or special chainring tool (available inexpensively from most *good* bike shops or ICE). Note how the bolts fit onto the rings. Swap the large chainring for the optional 55 tooth one, and reassemble. Be certain to tighten the bolts up evenly before riding the trike.

If you have changed either chainring, you need check the chain lengths again (as shown in section 2) to ensure that the trike has the correct length of chain.

4.12 Chainring Guard



The chainring guard is fitted onto the bottom bracket shell. If the chainset has been installed, you will need to obtain a crank extractor in order to remove it. With the chainset removed, slacken the single bolt on the chainring guard, and slip the guard onto the bottom bracket shell, ensuring that the guard does not touch the front derailleur.

Replace the chainset and tighten. To adjust the position of the guard, slacken the bolt and rotate the guard until the top edge is close to, but not touching, the front derailleur. While turning the pedals, check that there is clearance for the chain when it is running on, and shifting between, all three rings.



4.13 Bar End Shifters

Installation instructions are included with the bar end shifter kits. After you have removed the old twist shifters, remove the brake lever from the side where you would normally have a mirror, and then slip the mirror mount over the handlebar before replacing the brake lever.

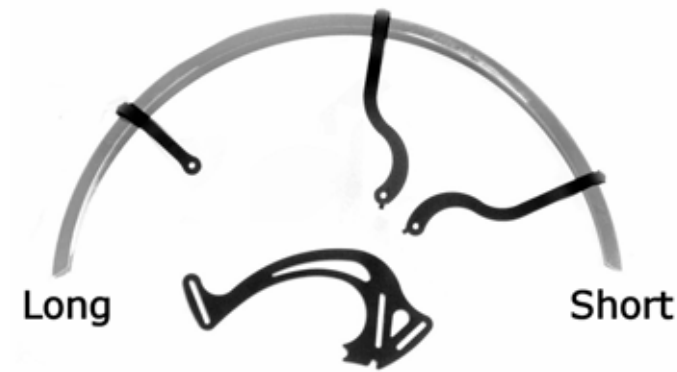
Ensure that the mirror mount, brake levers and bar end shifters are securely tightened before riding the trike.



4.14 Breathable Hardshell Seat Cover

The optional breathable cover is installed in place of the standard foam seat pad. Remove the foam cover, then slip the pockets on each end of the cover over the ends of the seat, paying attention that the Velcro fastenings line up (if they don't, the cover is on upside down). Press the cover firmly onto the Velcro. There is an extra piece of Velcro fastened to the cover; when you are happy with the cover's position, remove the backing and stick the Velcro to the seat.

4.15 Rear Full mudguard



- Slip the front slot of the mudguard over the head of the M6 bolt, and then rotate the bracket so the rear slot slides down over the quick release.
- Tighten the quick release.
- Slide the adjusting bolts until the mudguard has even clearance around the circumference of the tyre.

To assemble the optional rear full mudguard:

- Lay out the pieces as shown. It is particularly important that the plastic profile is installed the correct way around. Notice the long and short overhangs from the outer mounting holes.
- Fasten the 3 arms to the profile as shown. A M5 x 12mm button-head bolt goes through the hole in the arm, a rubber washer is then placed on the bolt, followed by the profile, the metal washer, and then the nylock nut. Tighten the nut snugly until the rubber washer begins to compress. **Do not over-tighten.**
- Fasten the arms onto the main mount. Note how the tab on the centre arm engages in the slot. Do not tighten the adjusting bolts at this time.



To fit the optional rear full mudguard:

- Put the supplied M6 bolt through the rear-most disk brake mounting hole, and tighten the nut on from behind. This step is not necessary if you have a disc brake already installed.
- Screw the supplied quick release and its spacer into the threaded hole at the rear of the dropout.



4.16 Fitting a Rohloff

The left side CNC rear drop out on the standard Trice models is equipped with a mounting point for the Rohloff OEM2 axle plate (Rohloff No 8227) making a tidy job of a Rohloff retrofit.



4.17 Installing the Rear Suspension Upgrade

4.17.1 Fitting the rear section to the cruciform.

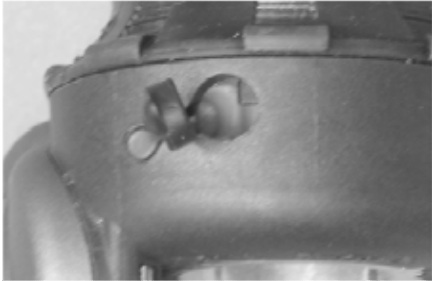
- Shift to right hand shifter into the highest gear ('9'). Disconnect the rear derailleur cable, noting how it is fastened to the rear derailleur. Remove the rear derailleur.
- Remove the seat.
- Remove the rear wheel.
- Undo the 2 clamp bolts on the main frame which hold the rear section onto your trike
- Remove the rear section
- Remove the aluminium frame shim from the rear of the frame. This will be Loctite-ed in place. The easiest way to break the bond is, starting at the slot, gently pry the shim away from the inner wall of the main tube. A small flat screwdriver works well for this. Be careful not to damage the paintwork. The shim will pop free and can then be slid out of the main frame, along with any brass adjustment shim that may have been used.
- Look inside the main tube. If there are any pieces of brass adjustment shim inside, remove them. If there are any patches of dried Loctite, they should be scraped away. An old table knife with a rounded end works well for this. You can easily feel with your finger if there is any Loctite remaining.
- Find the brown plastic shim. Roll it into a tube, and remove the protective coating from the double-faced tape. Insert the shim into the tube, making sure the gap in the shim lines up with the slot. When it is located correctly, press the double faced tape into place. Put a very light coating of grease on the inside of the plastic shim.
- Now refer to section 2.5 in this manual for instructions on fitting the rear section.

4.17.2 Fitting the seat

- Refer to section 2.7 for instructions on fitting the seat.

4.17.3 Install and connect the rear derailleur

- Remove cable housing from right shifter, noting how it runs through the cable guide near the chain pulley



- Replace the inner wire cable in the right hand shifter. The shifter should be set to '9' to access the cable. Open up the small access port on the side of the shifter; you will see the nipple on the end of the old cable inside. Feeding the old cable back through the shifter will cause the nipple to emerge from the port (a little jiggling of the shifter sometimes helps it come out). Pull the cable out. Uncoil the new cable and feed the end into the port. When it emerges at the adjuster, pull it through until the nipple seats itself inside the port. Close the cover on the port.

- Replace entire cable housing with the long length supplied. Run it through the cable guide near the pulley in the same way as the original cable housing. Bypass the cable stop on the frame. Check that there is enough slack in the cable housing to allow full movement of the handlebars. It is important that the cable housing does not impede the steering in any way.
- Use the 2 cable ties to fasten the cable housing to the frame near the now-redundant cable stop
- Fit the cable housing to the rear swingarm, and then refit the rear derailleur. Instructions to do this can be found in section 2.17 in this manual. The cable housing may be too long for your trike; cut it off to the correct length before threading the inner cable through it. Reconnect the rear derailleur following the instructions in section 2.17 of this manual. Check the chain length and adjust the gears (sections 2.20, and 2.21) and then fit the rear mudguard (section 2.22)

4.18 Key Ring



A key-ring is included with your trike. Use it for your bike keys and if someone asks where you got your trike, please give them our telephone number and web address. Call us if you need more key rings.

5.0 Riding your TRICE

CAUTION: If your feet fall from the pedals when you are riding then they could be dragged under the cross axle of the trike. Therefore the trike should only be ridden with your feet securely attached to the pedals; either with special shoes and pedals which you clip into or toe clips and straps.

We recommend the use of 'clipless' pedals. There is more information in section 8 of this manual. They are a safe way of attaching you feet to the pedals, Remember, because you are now riding a tricycle, there is no need to put your feet down until you want to get off the trike.

5.1 Getting on and off the trike.

Getting on

Begin by standing in front of the cross axle with one foot on either side of the front boom.

Now bend down and reach back to hold the side of the seat to help lower yourself as you sit. **Try not to push or pull on the handle bars as you get on and off.**

Getting Off

This is much like getting on, but in reverse order. Sit forward on the seat and put your feet firmly on the ground. Reach behind you and hold the side of the seat while you push yourself up into a squatting position before standing up.



Note: It is possible to damage the hardshell seat if these instructions are not followed. Not all parts of it are capable of handling the weight of a full grown person trying to get out of a trike. Seats damaged in this way are not covered under warranty.

5.2 Initial Test Ride

Start on a flat piece of road or drive preferably away from traffic. The front brakes are independent so the left brake operates the left front wheel and the right brake operates the right wheel. Sit on, clip in and make sure you know where the brakes are and that they stop you moving. Before you have ridden more than a few yards, **check the front brakes. MAKE SURE YOU CAN STOP!**

Steering is very easy and natural and you will soon become unaware of the movements required.

Gear changing - As with any derailleur system you can only change gear when you are pedalling and moving forward. It is easier to change if you are not putting a lot of force on the pedals, particularly when changing from a high to a low gear. The rear derailleur is operated by the right shifter, and the front using the left shifter. You should not try to change into the lowest gear (largest rear sprocket) unless you are on the middle or lowest (smallest) chain wheel, because the chain will put strain on the rear derailleur.

TIP - Try to get into the habit of not crossing over the gears at the extremes – don't run on the biggest chain ring and the biggest rear sprocket or the smallest chain ring and the smallest rear sprocket. This will help prolong the life of the transmission. Also try to anticipate hills and change to a lower (easier) gear before you get onto the steep part of the hill hence avoiding changing gear under pressure.

Do not change gear when the trike is roll backwards, as the chain will jam in the rear derailleur and likely damage it. When you are riding, you can make minor adjustments to the indexing of the gears using the adjusters located where the cables exit the shifters.

5.3 Stopping in a low gear

As with an ordinary bicycle it is best to get into the habit of finishing your journey in an easy gear so that you can pull away easily when you start again.

5.4 Relax

Whilst riding sit back and relax. **DO NOT PULL ON THE HANDLEBARS**; just hold them lightly. The trike will tend to steer itself in a straight line depending on the road surface and camber.

TIP – The steering of the trike runs on ball bearings so it is very smooth and requires minimal effort to steer. The gear cables run forward and backwards and the spring effect in these cables tend to make the trike slowly turn to the left if you let go of the handlebars completely. This is normal and we do not recommend riding without holding at least one of the handle bars or you will not have proper control of the trike.

5.5 Cornering

Your trike is inherently very stable under normal riding conditions. Cornering at high speed can cause your trike to lift a wheel, or in worse cases, roll over. Leaning into the corner can help this, and is a fun technique that all trike riders learn.

Take care on corners which have a 'reverse camber.' Reverse camber is where the outside of the corner is lower than the inside. On a corner with reverse camber, the trike will try to move to the outside of the curve, which could take you off the edge of the road, or into the oncoming lane.

We recommend that you find a quiet smooth surfaced area (such as a car park or firm grassy field), and get a feel for handling your trike. Try turning at various speeds to find the point where your starts to lift a wheel. It is better to learn this in a quiet park than a busy street.

When you are negotiating a corner at speed, remember that your weight shifts away from the inside wheel. You must remember that it is very easy to skid or lock the lightly loaded inside wheel, and that wheel is contributing less to your ability to brake and steer.

5.6 Handling

You should avoid riding the trike on two wheels. It is possible to do, with considerable practice, but it places unfair stresses on the wheels and you will not be able to control the trike properly.

If you lock the back wheel (using the optional rear disk brake), it is possible to make the back end of the trike skid around; this is the so-called 'handbrake turn'. While fun to do in a quiet car park, this maneuver can cause a loss of control, and should not be attempted around other vehicles. It can also scrub the tread off an expensive tyre in a very short time.

Heavy loads should be carried as low as possible, and as much in the middle of the trike as you can. Heavy loads mounted high on the back of the trike will affect its handling, especially at higher speeds and when cornering. Do not carry a child in a child seat over the rear wheel. Besides affecting the stability of the trike, it is not heavy enough to sufficiently support a child without someone sitting on it (it can fall over when you get out of the seat). For carrying children or heavy loads, we recommend towing a trailer. There are plenty of 2 wheeled trailers on the market, and they can be very heavily loaded without affecting the handling of the trike.

5.7 Brakes

The front brakes are operated independently by each main brake lever. The left lever operates the left brake, and the right lever operates the right brake. Normal braking should be done with both levers together and evenly for excellent stopping power; you will find your trike to be very stable under braking. Unlike other trikes, stopping using only one brake will not result in the trike veering from its intended course. This 'No-Brake-Steer' geometry is a safety feature that ICE developed and is designed into every trike we make.

Because your weight is being supported on 3 wheels rather than 2, you will find it easier to lock up the brakes on the front wheels. The trike will not roll over, but it will slide. Locked wheels are hard on tyres, and are not as efficient for braking as a wheel which is still turning. When you are braking into corner, you will find the unloaded inside wheel will lock up quite easily. It's not a problem, but remember the lightly loaded wheel is not contributing much to steering or braking the trike.

If you brake violently, at low speeds and with both brakes, you may find the trike wants to lift its back wheel. In extreme cases, you can brake hard enough for the chainring to hit the ground.

5.8 Hill climbing.

A recumbent trike or bike tends not to climb a hill as fast as an upright bike whose rider can get off the saddle to use his/her weight to get extra effort. It will climb in comfort at a lower speed and in a lower gear. Try to keep your cadence up by shifting down early. You should never need to get off and push, even when carrying a heavy load. Just gear down and keep spinning until you reach to the top of the hill.

5.9 Descending a hill.

Caution, Take care on your first downhill rides until you gain experience. It is not unusual to reach speeds of over 40 mph on steep descents. You will find you can go faster and with much more confidence once you are used to the way the machine handles. Because there is less air drag in the recumbent position you will go faster than a bike. You have powerful brakes with good stopping power.

CAUTION. the brakes are powerful and if they are applied sharply on some of our models with higher seats, you can cause the rear wheel to rise up. This can result in some loss of directional control.

5.10 Ground clearance.

When going over very rough ground, it is possible, but unlikely, that the underside of the frame could make contact. If you think there is a chance that the underside of the frame may hit an obstacle, get off first and look under the trike to see how close things are getting. You will quickly learn to recognize terrain that your trike can easily handle. If you do contact the underside of the frame then, it's unlikely any serious damage will be done (other than scratching the paint) but check to make sure everything is OK. A good way of riding over obstacles is to aim your trike so that the object goes directly under one of your feet. This way it misses the front wheel, the central frame, and the rear wheel.

5.11 Muscles

The first few times you ride your new trike, you will feel the muscles on your legs working harder than you may be used to. This is because pedaling from the recumbent position uses different muscle groups than riding in an upright position. You will find a noticeable improvement in this in a few days, and with a couple of months, you won't notice anything different at all.

When you are riding a recumbent, the best approach is to keep your cadence a little high, even if it means gearing down a little early. One good reason for this is that the recumbent seat allows you to brace yourself when you push on the pedals, and this makes it possible to put large loads into your knees. On an upright bike, if you pushed that hard, you'd lift yourself out of the saddle. Also, try to remember to shift down before you come to a stop; you will find starting off again to be much easier.

5.12 Folding and unfolding the trike

Folding and separating tool-lessly

- Ensure the chain is in top gear (on the smallest sprocket at the back)
- Release the two lower quick release clamps holding the seat in place. Release the seat angle quick release behind the seat. Slide the two clamps under the seat off the main frame seat cup. Remove the seat.
- Remove the rear mudguard and/or the rear carrier.
- Remove the back wheel by undoing the quick release axle and sliding the wheel down out of the dropouts, holding the rear derailleur back out of the way if necessary.
- Undo the Velcro retaining strap, then lifting both rear chain tubes up to the lower rack mount; fold the back legs under the frame.

If you have the optional Q/R kit you can go further

- If you want to further reduce the length, release the quick releases holding the front boom and either push it in fully, or pull it out completely. It is a good idea to mark the position of the boom with a permanent marker so it can be easily returned to its original position when you reassemble the trike. If you pull it out completely, you will need to unhook the chain from the chain rings.
- Remove the front mudguards (if fitted) by releasing, then unscrewing the quick releases.
- Release and remove the quick releases from the front wheels.
- Release the quick releases on the handlebars and fold them down flat.

Reassembly if you have the optional Q/R kit.

- Stand the handlebars up and secure the quick releases. Check that they are tight.
- Fit the front wheels and secure the quick releases. Check that they are tight.
- Fit the front mudguards.
- Return the front boom to its original position. Either pull out the front boom, or push it back in if you removed it (take care not to damage the thin plastic shim inside the main frame tube). Secure the quick releases, and check that they are tight.

Reassembly from the standard fold

- Lift up both rear chain tubes, and hold them up to the lower rack mount. Fold the back legs out from under the frame. Secure the Velcro retaining strap.
- Replace the rear wheel. Hold the derailleur mechanism back out of the way if necessary. Ensure the chain is engaged on the smallest sprocket. Secure the quick release, and check it!
- Replace the rear mudguard and or the rear carrier, and check they are secure.
- Replace the seat. Place the seat on the lower seat cup on the main frame, and slide the seat clamps back over the seat cup. Fasten shut the two quick releases on the clamps. Hook the top seat support back onto the quick release behind the seat, then secure and check the quick release.

6.0 Maintenance

Your Trice has been built from quality materials and parts, and will last for many years with just a bit of simple maintenance. Although there is nothing on the trike that a bike shop can't maintain for you, doing your own basic maintenance gives you a good feel of how your trike is working.

6.1 Lubrication

TIP - as with any cycle, a small amount of regular care will prolong the life of your trike and its components. The simplest thing you can do is to regularly give a quick drop of oil to all of the moving parts especially after riding in heavy rain. Always keep the chain and chain tubes oiled.

Lubricating the Chain

At regular intervals, and always after riding in wet weather, you should lubricate the chain. The chain tubes supplied with your Trice will help keep the oil on the chain by protecting it from rain and dirt, prolonging chain life. Check with your local bike shop to see which chain lube works best in your area. It is not necessary to use a lot of lube on the chain; better to use a little every week than a lot once a month. Wiping the chain down occasionally with a dry cloth will help keep it clean and prolong its life.

Other lubrication

Rear hub, head set and pedal bearings on your trike will need greasing from time to time depending on riding conditions, the same as any conventional cycle. The plain bearings in the suspension pivot need no lubrication. If they show any significant wear (unlikely), they are simply pushed out and replaced with new ones.

The steering ball joints don't require lubrication.

The front hub bearings, handlebar (stem) bearings, and pulley bearings are pre-lubricated and sealed. If they feel rough or sloppy, they should be replaced.

6.2 Adjusting Cables

Cables don't normally need a lot of adjustment. When they are new, they will stretch slightly, and that stretch needs to be adjusted out of the system. Check all cables regularly for signs of damage.

Brake Cables

To adjust the brake cables, loosen the locking nut on the barrel adjuster (this is the part that hooks into the brake backing plate on the inside of the hub). Screw the barrel adjuster out a little and check the brakes. When squeezing the lever, it shouldn't come too close to touching the handlebar grips. When the lever is released, the wheel should turn freely and not drag on the brakes. When the cable is adjusted, tighten the locking nut. If you are out riding and feel the cable could be a bit tighter, you can turn the adjuster on the brake levers to fine-tune the cable tension.

Deraillieur Cables

These are adjusted in the same way as brake cables. There is an adjuster on the rear deraillieur, but none on the front. For the front deraillieur, it is only necessary to have the cable tensioned slightly when the chain is on the inside chainring; fine tuning can be done using the adjuster on the left-hand shifter.

6.3 Brakes

The drum brakes on your trike have a very long life, and shouldn't ever need replacing under normal use. We have yet to see a worn out set of pads. If you find that the brakes are not gripping as well as they used to, they can be disassembled and de-glazed. Remove the wheel from the bike, and then the backing plate from the wheel. Note how the spacer between the hub and the backing plate is located. If the pads are glazed, they will look somewhat shiny and smooth. Using some fine sandpaper, lightly sand the surface of the brake pads until they look dull again. Be careful about not breathing in the dust from the surface of the pads. Clean the inside of the hubs out with a clean, dry cloth (use no oil, grease, or wax on the inside of the hubs), then reassemble the brake plates on the hubs. You should notice a difference in braking performance, and you should initially test them away from traffic until you are used to the improvement in braking.

TIP – periodic removal and lubrication of the brake cables helps increase their life and gives smoother operating brakes. Disconnect them at the wheel, and then a small amount of light oil can be dribbled down the housing without removing the inner cable.

If you have fitted the optional rear disc brake, it will be operated from a small lever mounted on the left-hand handlebar. Because the brake functions as a parking brake, it is necessary to make sure that it holds securely.

Check the brake's function, and if it appears to be slipping, tighten up the central bolt on the brake lever using a large flat screwdriver.



6.4 Drivetrain

The chain pulley on the tension side of the chain will wear over time. Initially it may make a small amount of noise, but within a few weeks it will bed in and run much quieter. A pulley should normally last about 10,000-12,000 miles, but if it shows significant wear, replace it.

Check that your cranks are tight after the first 50 miles of riding. These should be fastened firmly to the bottom bracket, with no play. Even a small amount of movement will cause the joint between the spindle and the hole in the crank to wear, resulting eventually in damage to the chainset.

The rear derailleur idlers tend to collect oil and dirt. Clean them with a dry rag. If they squeak, they can be disassembled and greased. When you lubricate your chain, put a drop of light oil on the moving pivots of the derailleur; they will last much longer.

The more you ride your trike, the more used you become to the sounds it makes. If you notice any change in the sound your trike makes, check it carefully; it may be a sign of something needing attention.

6.5 The frame

The main cruciform of your Trice is powder-coated, a baked-on finish that is both tough and beautiful. It is possible to damage the coating, particularly if you scrape the trike over road obstacles. If this happens, touch-up paint is available from ICE to repair the damage. Lightly abrade the scrape with fine sandpaper, cover the exposed metal with regular metal primer, and then apply the coloured touch-up paint.

The front boom and rear section of your Trice are anodized. They require little maintenance except for regular cleaning.

Mud, rain, road salt, salt air, and sweat can all affect the finish of your trike. Fitting mudguards will help to keep road dirt off your trike.

Regular cleaning and corrosion protection should be a part of your maintenance routine. We recommend hand washing your trike with warm soapy water and a rag or soft brush. Never use abrasive cleaners or solvents on the powder-coated finish. Rinse well and dry after, and then lubricate the chain.

Do not clean your trike using a pressure washer, as the water will force its way into bearings, removing the grease and causing corrosion.

Keeping the frame dry and clean will keep the coating looking its best for years to come.

If you need to clean the seat mesh, it should be hand-washed in warm soapy water, rinsed well, and hung up to dry. Do not tumble dry!

After the first 50 or 100 miles, check the steering components for signs of looseness. The headset bearings may need to be snugged up after they have bedded in, and the axles should be checked for tightness as well.

After the first ride or two, the clamp bolts should be checked to ensure they are tight.

6.6 Tyres, tubes, & wheels

Tyres

Quality tyres are vital for good traction and control while accelerating, turning and braking. Each brand of tyre has its own individual mix of puncture protection, rolling resistance, pressure rating, and durability. Finding the one that suits your riding style best is the challenge. Tyres should always be inflated according to the range marked on the sidewall, never above the maximum recommended, and they should be checked regularly. Worn tyres should be replaced. Trikes often run with slightly reduced pressure, as the load is distributed across 3 tyres, not 2. Lower pressure results in a more comfortable ride, but at the expense of higher rolling resistance.

Balloon tyres are now available that combine relatively low rolling resistance, puncture protection, and a smooth ride; they are well worth considering. Your Trice has been designed to allow these larger tyres to be fitted.

Appendix C has a conversion table for pressure in PSI and Bar.

Tubes & Punctures

Always use good quality inner tubes on your trike. It is easiest to carry a spare inner tube with you, and change it if you should be unlucky enough to have a puncture. Front punctures are fairly easy to mend, as the tyre can be removed without taking the wheel off the bike. You may find it easier to work on the front wheel if you put the trike on its side first. Repairing a rear wheel puncture is no different from any other cycle.

Spokes

Occasionally check for loose spokes. Broken spokes are caused by spokes loosening up, and then undergoing stress every time they take a load. If you notice loose (or broken) spokes, or an untrue wheel, take your bike to your local bike shop to have the wheels re-trued. One loose spoke puts an unfair load on the spokes next to it, and one broken spoke is usually followed by another.

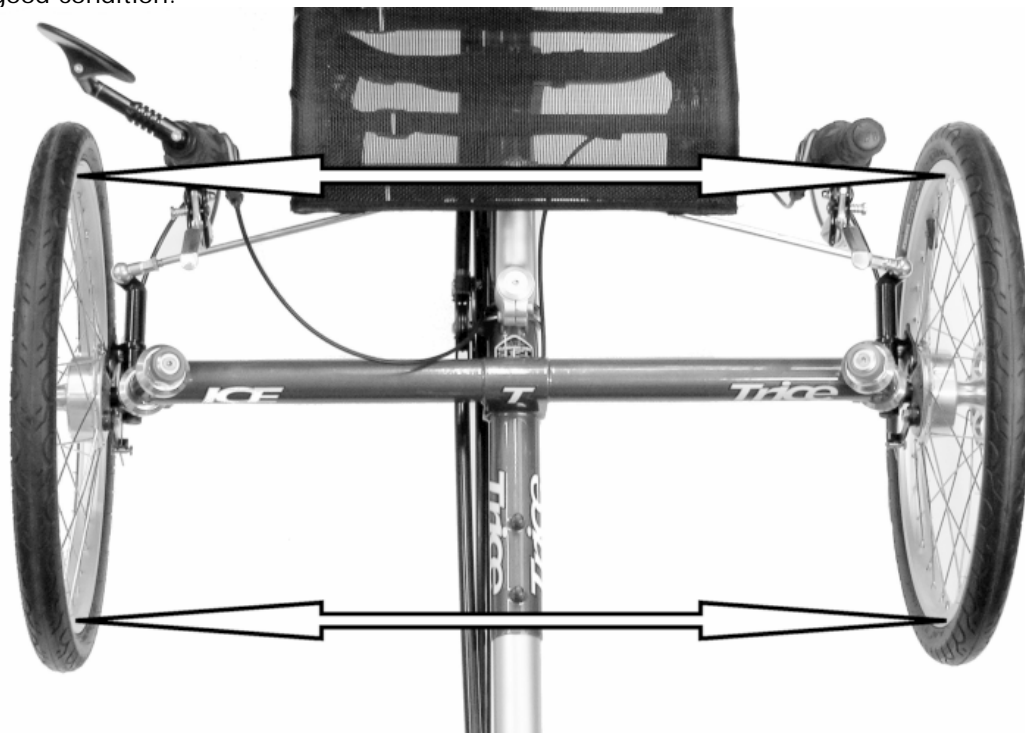
6.7 Suspension

The suspension on the TRICE trikes runs on plain bearings. These bearings are made from a copper-plated steel shell, coated with a sintered bronze layer filled with a mixture of PTFE and other friction-reducing additives. They do not normally require lubrication or maintenance. If you should notice any significant amount of play in the suspension joint, the bearings can be easily replaced. To do this:

- Undo the 2 pivot pin clamp bolts under the suspension mount.
- Slide the pivot pin out of the bearings. If it is reluctant to slide, tap gently using a hammer and a small block of wood to move the pin.
- Using the hammer and small block of wood, gently remove the suspension bearings. There are three separate bearings to be removed; note the order they came out in.
- Gently push or tap the new bearings into place. Be careful not to damage the Teflon coating on the bearings.
- Press the pivot pin back into place, and tighten the 2 pivot pin clamp bolts.

6.8 Adjusting the tracking.

To avoid excessive tyre wear the front wheels must be kept parallel. Tracking only needs to be checked if you suspect damage through an accident, if unusual wear starts on one or both front wheels, or the feel of the steering changes. Before adjusting the tracking, check to make sure the track rods are not bent and the ball joints are in good condition.



- Use a long ruler or a piece of rod to measure between the inside of the tyres at the front of the tyres, and then at the rear, all measured at axle height. The distance (between the arrows) should be the same, or up to 2mm less at the front (toed-in).

- If the tracking is out of adjustment, loosen the two lock nuts on one track rod, and rotate the rod (a small rotation gives a fairly large change in track). Tighten up the lock nuts when the distance is correct.

TIP - note that the lock nuts at each end of the track rods have left and right handed threads (the left hand threaded nuts have a small notch to identify them). This allows the track to be adjusted very precisely

6.9 Storage

If you are using the trike most days, it is best to store it somewhere dry and well ventilated. A damp, covered trike will quickly develop surface corrosion of its components, and eventually, the frame. If you are storing your bike for any considerable period (over winter or a long holiday):

- Clean the bike and lubricate.
- Store the trike indoors where it will be dry. Hanging storage is good. Outdoor storage under cover is acceptable if there good air circulation around the trike. Outdoors under a tarpaulin will actually accelerate any corrosion and can damage the paintwork and components.
- Set the gears to the smallest sprocket and chainring. This keeps the derailleur springs and cables under minimum tension.
- Ensure they tyres are properly inflated before storing the trike, and check them every month or 2. Storing a trike on soft or deflated tyres is not recommended.
- Before putting the bike back into service, go through all the maintenance and adjustment instructions in this manual to ensure the trike is working properly.

6.10 Serial No.

The serial number is marked on the under side of the main cross joint.

6.11 Recommended Minimum Tools and Spares

Get you home kit

- Tyre levers
- Spare inner tube
- Puncture repair kit
- Mini Pump
- Small adjustable spanner
- 3, 4, 5, 6mm Hex Keys
- Small Phillips screwdriver
- Spare Chain link
- Chain tool

Full Touring Kit

- the 'Get you home kit' plus at least these items:

- 8mm spanner.
- 9mm spanner.
- 10mm spanner.
- 19mm box spanner.
- 19mm spanner.
- 8mm Hex Key (for the chainset).
- Chain link extractor tool.
- Spare gear cable.
- Spare brake cable.

7.0 Safety

Between all of us here at ICE, we've ridden thousands of miles on trikes, and we've all developed good road sense. The following safety considerations are for your benefit; please give them serious consideration:

- We recommend always wearing an approved cycling helmet. Get the best you can afford. If you've got cheap head, get a cheap helmet!
- We highly recommend the use of 'clipless' pedals. Shimano's SPD system is a good choice, and there are many SPD compatible shoes and pedals on the market. Most cycling shoes will come with the necessary fittings to allow cleats to be fitted, and the only other thing that you'll need is a set of pedals. Pedals are available with cleat bindings on one side and a standard platform on the other (allowing you to go for a quick spin without having to change into your cycling shoes). For those that have not experienced clipless pedals, they have a small binding mechanism built into the pedal, which locks onto a cleat fastened to the bottom of the shoe. It works in a similar fashion to a ski boot binding. To lock your foot in, you hook the cleat into the binding and push. To remove your foot, you twist your heel sideways and the binding releases the cleat. Once you are clipped in, you will not need to put your feet down until you want to get off; being clipped in is comfortable, lets your legs relax when you are not pedaling, and allows power to be transferred more effectively to the pedals.
- Check your trike before each ride. In particular, check the tyres and brakes to ensure they are in good working order.
- If you are riding at night, make sure you have a legal white headlight and a red taillight. We recommend using both non-flashing and flashing LED taillights in tandem. The flashing light is very noticeable at a great distance, and the non-flashing light is better for other road users to judge your distance from them with.
- Use your rear view mirror, but don't rely on it. You must also turn your head to check behind you before turning or changing lanes.
- Be careful of carrying too much speed into corners. The immense stability of the trike is not absolute, and sharp high speed cornering may cause you to lift the inside wheel, or even roll over. As you ride more, you will gradually learn what the limits of the trike are.
- Be careful of downhill speeds. It is very easy to reach speeds in excess of 40 mph (60kph) when going downhill. Although you may feel in perfect control, be wary of and allow for road hazards and other road users doing stupid things.
- The drum brakes can get hot after long descents. You can burn yourself on the hot surfaces.
- The usual practice is to brake evenly using both hands. You can brake at the maximum rate with the front brakes only. The trike is designed not to brake-steer if you brake only one side (a safety feature necessary if you are braking and signaling a turn at the same time), but violent, single sided braking can cause the trike pull slightly to the braked side.
- Use your flag. Most road users haven't ever seen anything like your trike, and will give you much more attention and room on the road than they would a standard upright bike. Nevertheless, using the flag will help to ensure you've been seen, especially in heavy traffic. You are low, and reversing cars may not be able to see you. Ride defensively, as if others can't see you.
- Consider bright visible clothes. They make good sense regardless of what you are riding.
- You might consider fitting a horn. The 'AirZound' is a lightweight air horn, charged with your bicycle pump, and it is LOUD! It is available from most good bike shops.
- Although you are far more noticeable than any other cycle, motorists will almost always underestimate the speed of an approaching trike. They just don't seem to understand how fast you can be traveling. Be wary of cars which assume you are 'slow' and pull out in front of you with little warning. Also be wary of cars overtaking you close to a junction. They will often misjudge the space they have to get in front of you, and are rarely certain of what to do once they've realized their mistake.
- Like any other cycle, try not to ride close to parked cars. Drivers can fling open a door or pull out suddenly.
- Don't ride close to the edge of the road. Rubbish tends to collect there and your tyre is at a greater risk of picking up a puncture. Although a trike is only a little wider than the handlebars of an upright bike, it is seen as being very wide by other road users. If you move out a little into the road, it is less likely that drivers will try to force their way past. Likewise, pay attention to timid drivers that refuse to overtake you (because you are so wide!) Pulling to the side to let the queue pass will earn you the respect of other road users.

8.0 Other Important Information

8.1 Recumbent/Trike forums on the Internet

Now that you have your new trike, why not share your experiences with others on some of the internet forums?

IHPVA Lists

There is a trikes specific mailing list run by the IHPVA (International Human Powered Vehicle Association). The list generates one or more emails daily (in digest mode). You can subscribe to the trikes mailing list at <http://www.ihpva.org/mailman/listinfo/trikes>

The same page will also let you unsubscribe and change your subscription options.

Bent Rider Online

The BentRiderOnline website is a valuable source of information. They operate a message board (forum) that is moderated and is free to join. You will need to register before you can post a message, but the forum is available for anyone to read. To register, point your browser to www.bentrideronline.com and click on the 'Message Board' link at the top of the page. On this new page, you will find links to the FAQ (Frequently Asked Questions) and the registration page. Follow the simple instructions and you will be registered to participate in the discussion. There is a Trikes specific forum under Specialty Discussions, and you will find a number of Trike owners there.

VeloVision

VeloVision is a magazine, published in the UK, covering specialised bikes, cycling as transport and human power. We'd have to agree when they say "It's a quarterly dose of cycle inspiration." To get to the forum, point your browser to <http://www.velovision.co.uk/forum/>

Follow the link to 'VV discussion'. To register, click on the 'Log In' link and then follow the link to 'Need a Login? Register Here'. The registration is painless and allows you to post on the forum. This forum is not arranged by subject, but just has a list of the topics presently under discussion.

uk.rec.cycling

uk.rec.cycling is an un-moderated Usenet group. This is a friendly gathering of enthusiasts who discuss a wide range of subjects, usually related to cycling in the UK. There are a number of recumbent riders and trike owners who are regular contributors to the group. To join the group, you will have to set up a Usenet (News) account with your Internet Service Provider. This is usually free. Your provider will be able to provide you the details of how to configure your email software to access the group.

Alternatively, you can access the group through the Google search engine page. Point your browser to <http://groups-beta.google.com/group/uk.rec.cycling> and read the posts at your leisure. You can post to the group if you follow the Google Groups registration process.

8.2 Warranty Information

Warranty

Inspired Cycle Engineering warrants, to the original owner of each new Trike tricycle that the frame, seat, and steering components are free of defective materials and workmanship for three (3) years from original date of purchase. Component parts are limited to one (1) year from original date of purchase. Warranty is conditional upon the trike being operated under normal conditions and being properly maintained. Warranty is offered to the original owner only, and is not transferable. This warranty does not apply to:

- damage through normal wear and tear
- neglect (inadequate care and maintenance)
- damage from crashes or jumping
- overloading through excess weight
- incorrect assembly
- modifications to the trike (additional or changed components)
- theft
- use as a power driven vehicle
- failure to follow instructions or warnings in the owner's manual
- Activities for which they were not designed.

Bending of frames, forks, handlebars, seat posts or wheel rims can be a sign of misuse or abuse.

Inspired Cycle Engineering reserves the right to make sole determination of whether any failure or damage claimed under warranty was caused by material or manufacturing defect, and reserves the sole discretion to repair or replace any parts covered by this warranty.

The owner shall be responsible for all labour, shipping, and travel costs connected with the repair or replacement of warranted parts. Inspired Cycle Engineering will, at our sole discretion, normally consider compensation for reasonable labour, shipping, and travel costs associated with warranty claims.

Inspired Cycle Engineering shall in no event be liable for incidental or consequential losses, damages or expenses in connection with its tricycle products.

In practice, if you think you have a warranty claim, contact your dealer or us. We are passionate about our product, and want you to be too. If it is our problem, then we do our best to put it right.

8.3 Liability Information

Liability Waiver:

Taking part in any sporting activity can result in injury or death. Cycling is no different in this regard, and recumbent tricycles no different from upright bicycles. In many ways, recumbent trikes can be much safer than a standard bicycle. Nevertheless, the rider (that's you) is expressly assuming the risk for any injury and/or property damage that may result from using our product, as well as for any and all injuries and/or property damages caused by someone riding your trike.

We have no control over how the trike is used or maintained. It's your trike; it is up to you to be responsible for yourself. You need to ensure that the trike is safe each time before you ride it. You need to ensure that it is maintained to a proper standard. Read and understand this manual; it has warnings and suggestions that will help you to use the trike safely. If you are in any doubt about any of the advice or procedures in this manual, please contact your dealer or ICE. It is up to you to know and obey traffic laws of the country or state where you will be riding your trike. Pedal cycles are regarded in most countries as vehicles when on the road and are subject to the same rules as motor vehicles. If you are not comfortable on the road, or have little experience riding in traffic, try practicing riding on quieter streets, at least until you develop the necessary skills and road awareness. Many bike shops can offer instruction on advanced riding techniques. Inspired Cycle Engineering shall in no event be liable for incidental or consequential losses, damages or expenses in connection with its tricycle products.

8.4 Legal requirements

Legal requirements vary from country to country and you should always comply with them.

The important areas you need to consider are lighting, and helmet use. Consult your local bike dealer for information about what is required in your area. Please also remember that even if not required by law, some equipment (such as helmets and lights) can increase your personal safety and should be carefully considered.

8.5 Contacting us

Your first point of contact should be your local dealer. They will be able to answer most of your questions and can provide you with the full line of Trice accessories. If you need to speak to us directly, we can be contacted in a number of ways:

In person or by post

Telephone & FAX:

e-mail:

Website:

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Manual Revision: 03/04/2006

This manual is composed using 11pt Verdana, a British-designed font which is renowned for its excellent readability.

Appendix A: Tightening torques

Fastener	Uses Hex Key (mm)	nm	Lb-ft
Front derailleur clamp bolt	5	5-7	4-5
Front derailleur cable clamp bolt	5	5-7	4-5
Chainset - central crank bolt	8	35-50	25-36
Chainset - chainring bolt	5 + tool	8-10	6-7
Chainring guard bolt	5	6-8	4.5-6
Main frame clamp bolts	5	8-10	6-7
Mudguard adjusters	4	6-8	4.5-6
Mudguard main fasteners	4	8-10	6-7
Axle bolts	19mm spanner	25	18.4
Steerer pivot bolt	5	8-10	6-7
Handlebar clamps	5	5	4
Twist-grip clamp bolt (hex key)	3	1-2	1-2
Brake lever clamp bolt	5	6-8	4.5-6
Rear main frame joint	5	8-10	6-7
Mirror	3	3-5	2.5-4
Pivot pin clamp bolts	5	6-8	4.5-6
Shock pin	10mm spanner	5-7	4-5
Disc brake caliper mount	5	6-8	4.5-6
Disc brake rotor lock ring	Tool	40	30
Rear mech hanger	5	8-10	6-7
Rear derailleur mounting bolt	5	8-10	6-7
Rear derailleur Cable clamp bolt	5	5-7	4-5
Upper seat mount clamp bolts	4	5-7	4-5
Head rest clamps	4	5-7	4-5
Headrest clamp pin	5	5-7	4-5

All other M4 bolts, tighten to 5-6 nm (4-5 lb-ft)

All other M5 bolts, tighten to 6-8 nm (4.5-6 lb-ft)

All other M6 bolts, tighten to 8-10 nm (6-7 lb-ft)

Appendix B: Elastomer limits

Rider weight

60-125 lbs (4-11 stone, 25-55 kg)

125-200 lbs (10-14 stone, 55-90 kg)

200-250 lbs (12-18 stone, 90-115 kg)

Elastomer

Yellow

Red

Green

Note: you may need an elastomer that is one grade harder if you are carrying any significant load. Elastomers are stiffer at lower temperatures, and you may find you prefer to change to a softer elastomer in cold weather.

Appendix C: Tyre Pressures

PSI	BAR	PSI
	2	29.0
30	2.1	
	2.5	36.3
40	2.8	
	3	43.5
50	3.4	
	3.5	50.8
	4	58.0
60	4.1	
	4.5	65.3
70	4.8	
	5	72.5
80	5.5	80.0
	6	87.0
90	6.2	
	6.5	94.3
100	6.9	
	7	101.5
	7.5	108.8
110	7.6	
	8	116.0
120	8.3	
	8.5	123.3
130	9.0	130
	9.5	137.8
140	9.7	